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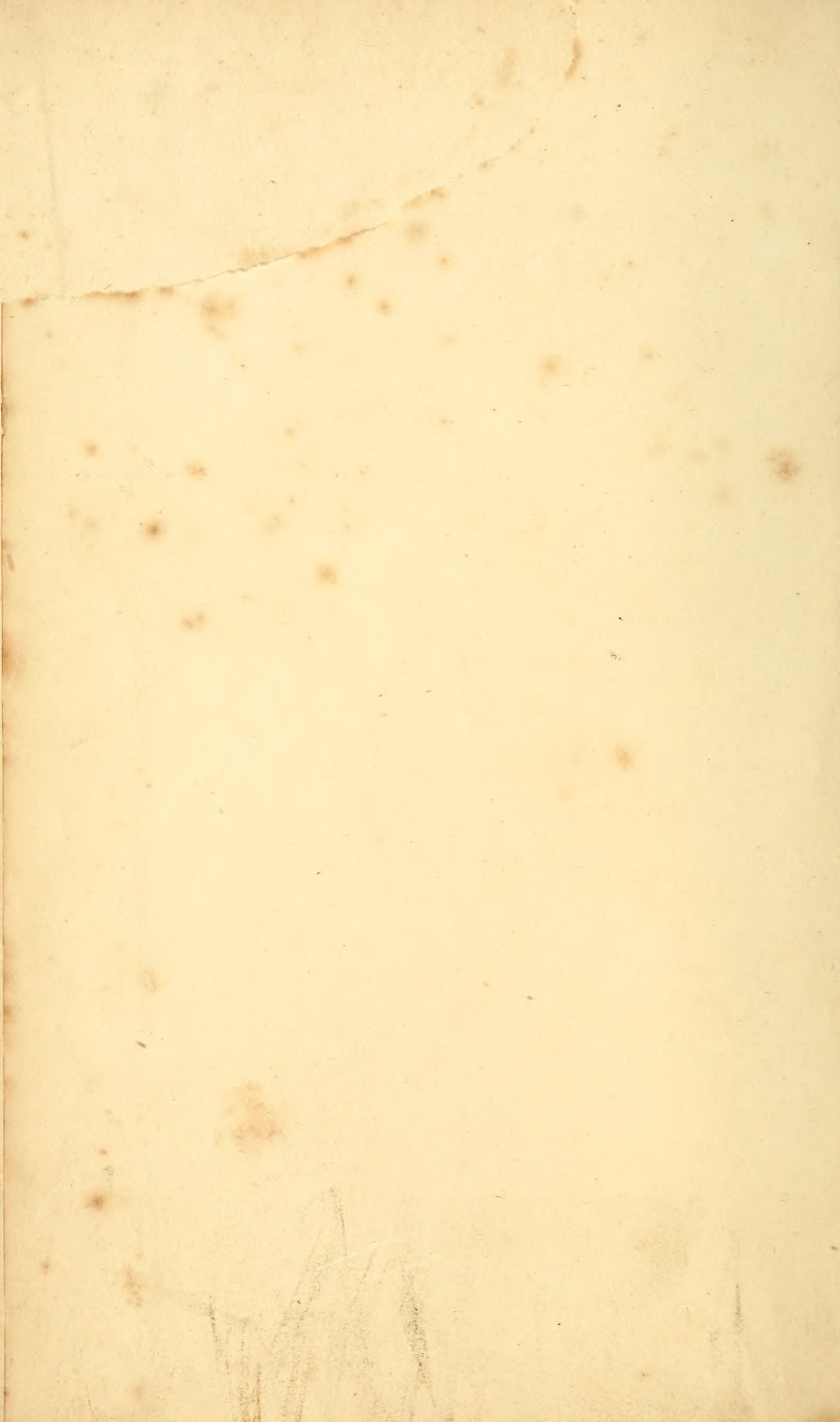
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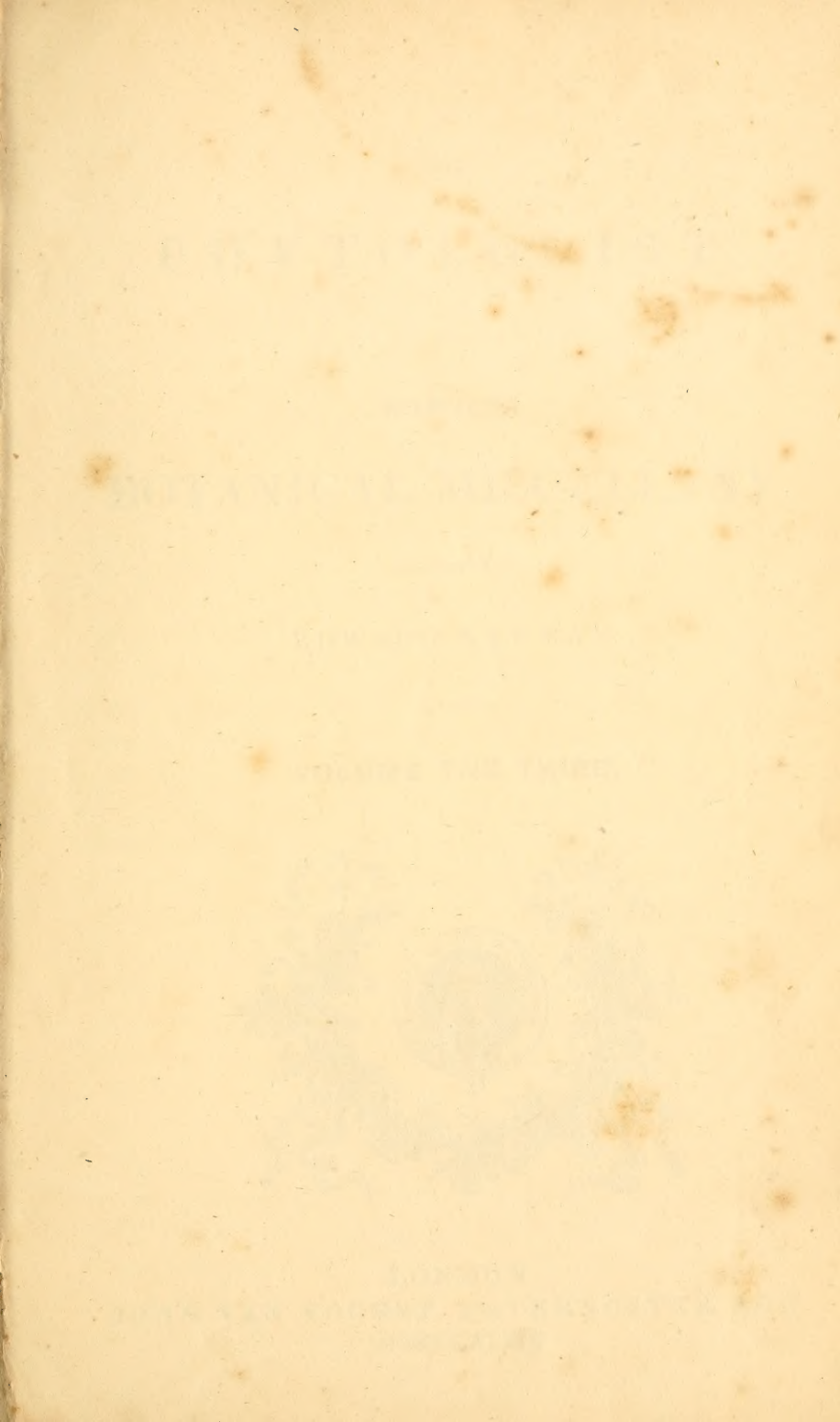
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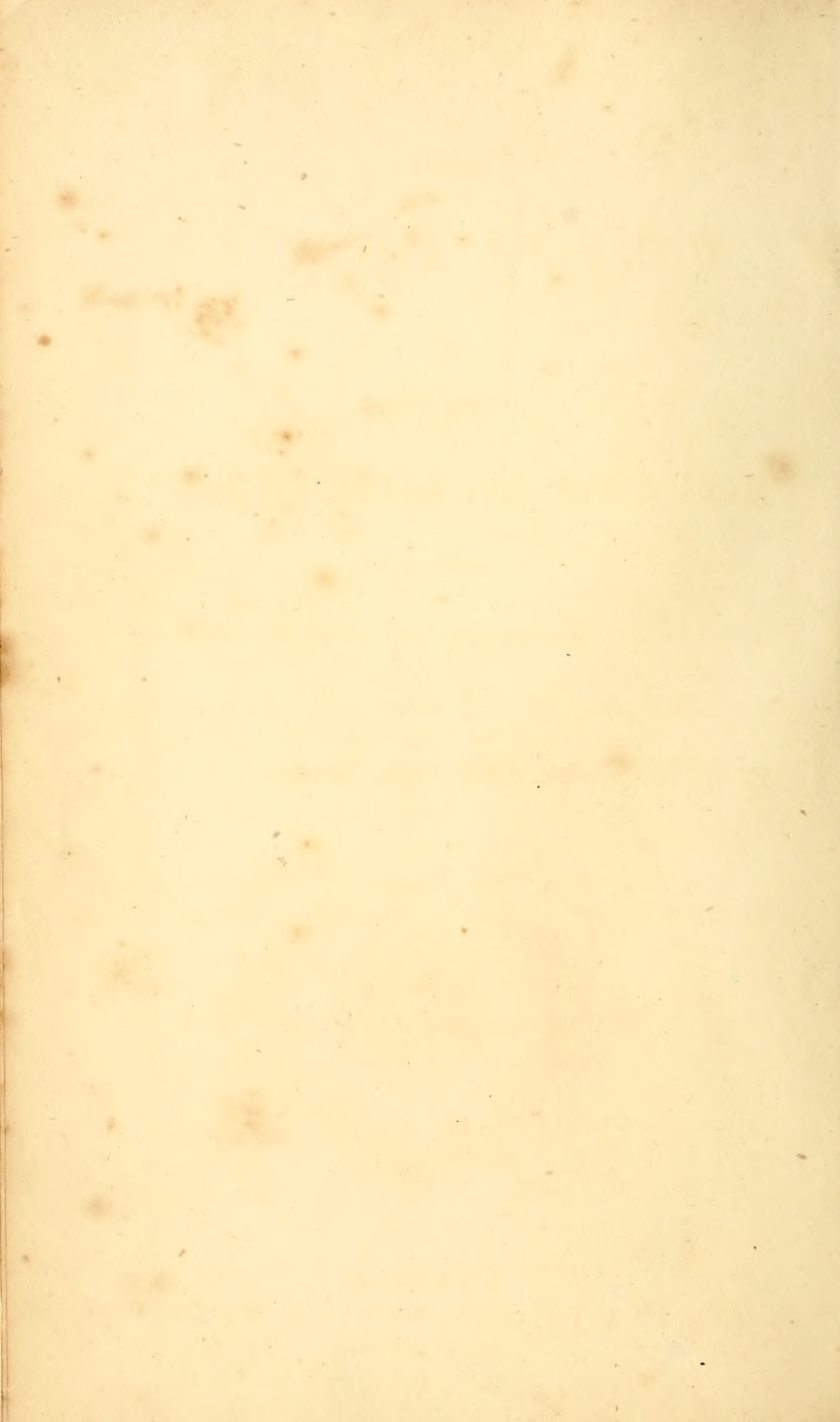
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THE
P H Y T O L O G I S T :
A
POPULAR
BOTANICAL MISCELLANY.

CONDUCTED BY
EDWARD NEWMAN.

VOLUME THE THIRD.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLVIII.

"Not a tree,
A plant, a leaf, a blossom, but contains
A folio volume. We may read and read
And read again, and still find something new,
Something to please and something to instruct."

THE VILLAGE CURATE.



PREFACE.

It is with unusual pleasure that I offer my annual address to the readers of the 'Phytologist.' Fully aware of the cordial good feeling that exists among British botanists towards this journal, I am confident they will receive with satisfaction the announcement that the sale has considerably increased: the amount produced by the sale during the half-year ending the 30th June, exceeded that of any previous half-year; and I learn, although the accounts are not yet made up, that the half-year ending the 31st December is likely to exhibit a still further increase. This satisfactory state as regards finance is accompanied by one equally satisfactory as regards contributions: these have been so numerous as to compel me to publish a third sheet on two occasions, making forty-eight pages instead of thirty-two. I hope this abundance of matter will still continue to flow in, as I shall never object to the extra cost of printing: indeed, if the press of matter required it, I should have great pleasure in seeing the work permanently enlarged, for I cannot shut my eyes to the fact that the present price of the 'Phytologist' will not bear comparison with that of the popular periodical literature of the day; and can only be justified by a reference to the extremely limited section of the reading public that feels an interest in the annals of British Botany; and when the purchasers are few the charge must be comparatively high.

The papers have been rather of a general than particular character, and the additions made to our *botanical knowledge* greater than those to our *list of species*. Among the *former* I need scarcely remind the reader of Dr. Planchon's admirable paper on *Ulmus* (Phytol. iii. 34), Mr. Watson's on two allied species of *Malva* (iii. 221), on the *Filago germanica* of Linneus (iii. 313), &c., and Dr. Bromfield's on the

Plants growing wild in Hampshire, still in course of publication. Among the *latter* the following may be enumerated, although it must be observed that many of them are rather additional names than additional species: they are mostly forms, which have been either confused with more familiar species, or only distinguished from them as varieties. Those which do not come under this category may be referred to that of the introduced plants.

Trifolium elegans (Phytol. iii. 47) is recorded by Mr. Hewett Watson as having occurred in clover-fields in Surrey, doubtless introduced with imported seeds.

Filago Jussiei (Phytol. iii. 216) is announced by Mr. G. S. Gibson as a British species, occurring in the counties of Cambridge and Essex. Subsequently Mr. Hewett Watson explained that it is identical with the *F. spatulata* of Presl and Jordan, which he finds in various parishes in Surrey (Phytol. ii. 313).

Apera interrupta and *Orobanche Picridis* (Phytol. iii. 269) are mentioned in a Report from the Botanical Society of London, Mr. G. S. Gibson having presented specimens of the two plants to that Society; the former discovered near Thetford, by the Rev. W. W. Newbould, and the latter found by the same botanist, at Comberton, near Cambridge.

Alsine rubra, var. *media* (Phytol. iii. 321). Under this name Mr. F. J. A. Hort records the discovery of a plant in the counties of Devon, Dorset and Pembroke, which is supposed likely to prove a species distinct from *A. rubra*, and which has, indeed, been described as such by Fries and others.

Melilotus arvensis (Phytol. iii. 344) is recorded in a Report from the Secretary of the Botanical Society, as having been presented by Mr. G. S. Gibson, from the neighbourhood of Saffron Walden, in Essex.

Potentilla mixta, *Mercurialis ovata*, *Carex Kochiana*, *Triticum biflorum* and *Fumaria agraria* (Phytol. iii. 328) are announced as British plants by Mr. Mitten, in the 'London Journal of Botany,' for October; and particulars respecting

them may be seen in the 'Phytologist' for the succeeding month, as above referred to.

Carex bryzoides has been reported wild in Britain, but no sufficient notice of its locality has hitherto reached the 'Phytologist.' Nor, indeed, can we say whether there is anything better than newspaper authority for its existence with us.

The following additional localities are of considerable interest:—

Adiantum Capillus-Veneris. Phytol. iii. 11. Mr. H. E. Smith records this fern as growing on the Peak of Derbyshire. This inland habitat is very singular, and I should be much gratified at receiving confirmation of the fact.

Linaria supina. Phytol. iii. 29. Mr. Westcombe records the occurrence of this species at Hayle, in Cornwall, thus adding a second county to its geographical range in this country.

Filago gallica. Phytol. iii. 48. Recorded by Mr. Watson as found by Mr. Varenne near Berechurch, Essex. Long recorded as British, but few botanists had ever seen a British specimen.

Carex punctata. Phytol. iii. 57. Found near Charlestown, Cornwall, by Mr. Westcombe. Recorded only from Caernarvonshire and Guernsey previously.

Filago apiculata. Phytol. iii. 269, 310, 317. The first notice of this plant as a distinct species, appeared in the 'Phytologist' for 1846 (Phytol. ii. 575), with a description by the Rev. G. E. Smith, to whom English botanists are indebted for having their attention called to its claims to specific distinction. The correctness of Mr. Smith's view appears now in a fair way towards being generally recognized and admitted. The plant occurs in various counties, although reported only from Yorkshire previous to 1848.

In conclusion, I beg again to offer my warmest thanks to those

contributors and subscribers to whom I am so much indebted, and without whose cordial co-operation my exertions would be altogether futile. Far be it from me to insist on the value of these exertions, or to claim any kind of merit for the display of botanical acumen in my selection of papers for this journal. My motto has ever been "the smallest contribution thankfully received," and on this principle have I uniformly acted, accepting with eagerness the humblest addition to the stores of science. I firmly believe that this is the true principle of progress; and I hope that no British botanist, from John O'Groat's to the Land's End, will hesitate to record his observations in the fear that they may be judged unworthy of insertion.

EDWARD NEWMAN.

9, Devonshire Street, City,
December, 1848.

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THE PHYTOLOGIST.

On the Equisetum fluviatile of the 'London Catalogue of British Plants.' By HEWETT C. WATSON, Esq.

THE position of "*Equisetum fluviatile*" among the "Excluded Species" of the 'London Catalogue' may prove a puzzle to other botanists, equally as to the reviewer of that Catalogue, in the December number of the 'Phytologist' (Phytol. ii. 1051). And since this position of the *Equisetum* in question has been selected by the reviewer as an instance of occasional inaccuracy in the said Catalogue, it may not be amiss to offer the explanation which seems to be required, in connexion with the reviewer's remarks thereon.

Readers of the 'Phytologist' are well aware that English botanists long habitually applied the name "*fluviatile*" to that species of *Equisetum* which is now currently designated "*Telmateia*." This error was pointed out by continental botanists, and subsequently corrected by Newman in the former volume of the 'Phytologist' (Phytol. i. 534), and the 'History of British Ferns' (p. 52). In making the correction, Mr. Newman did not discard the name of "*fluviatile*" wholly, but transferred it to that other species which most English botanists still know under the name of "*limosum*." The propriety of this transfer, however, is yet not acquiesced in by some botanists, who are among those most likely to have considered the subject.

In the first edition of the 'London Catalogue' the name "*Telmateia*" was adopted from Newman in place of "*fluviatile*." This latter name was in consequence wholly omitted; that of "*limosum*" being retained for the plant which most English authors had so designated in their works. In editing the second edition of the same Catalogue, the question again came before us, whether the name of "*limosum*" should be retained, in accordance with the usage of English authors generally, or whether the name of "*fluviatile*" should be adopted from Newman, instead of the former. In the second edition of the 'British Ferns' (p. 51), the two names are treated as synonyms, that is to say, as meaning one single species which is barely distinguishable into two very slight varieties, the branched and the un-

branched;—varieties which pass insensibly one into the other. But nevertheless a sort of contradiction of his own view is given by the same author in the prefixed Synopsis (p. 7). And there are other and stronger reasons for avoiding the change at present, in addition to Mr. Newman's own state of doubt about the plants.

In a more recent publication on British plants, the second edition of Babington's Manual, we find a different application of the name "fluvatile" (of "Linneus"); where it is used for a plant distinguished from the *Equisetum limosum* (of "Linneus") by other characters than the presence of branches. And the author of the Manual mentions the plant so distinguished, and so named, as one that is only reported to be native. Apparently he had seen no British specimen. Neither had Mr. Dennes or I seen any examples of it. According to Fries the true *Eq. fluvatile* (*Linn.*) and *Eq. limosum* (*Linn.*) are two readily distinguished species, although usually deemed varieties of one. And it is these two alleged different plants which are intended by those names in the second edition of Babington's Manual, and in the second edition of the 'London Catalogue.'

After this explanation, I trust it will appear that the reviewer was right in saying that *Equisetum fluvatile* was "not unadvisedly" placed among the "Excluded Species" of the 'London Catalogue.' It is there entered in the following manner, which is important to the defence or explanation:—

‘fluvatile, "*L.*"——?’

The use of inverted commas ("*L.*") was of course intended to show that we gave the name on some authority, and not as an ascertained fact to which we could ourselves certify. And the addition of the note of interrogation (the use of which, when so applied, is explained in the Catalogue) signified that the species is one "not clearly ascertained to occur in the British Islands." With respect to authority for the name, we have the very high one of Fries, endorsed (as the Americans say) by Babington. And with respect to the nativity of the plant in Britain, we were surely entitled and called upon to place among the doubtfuls any alleged species of *Equisetum* which was apparently unnoticed by Newman in 1844; which, in 1847, Babington vaguely mentions only as one reported to be native; and of which neither of us, the editors of the Catalogue, had seen an example. If, as stated by Fries, *Eq. limosum* and *Eq. fluvatile*, both of Linneus, are two distinct species, it must still remain to be ascertained satis-

factorily whether *both* do occur in Britain, or whether only *one* of them does so occur,—and, in this latter case possibly, even to *which* of the two species our well-known plant should be referred. Meantime, the generally adopted name of “*limosum*” was still retained for our generally known species; and the name of “*fluviale*” was used for the dubious plant, in conformity with Babington’s Manual. I have abstained from interrupting the continuity of my own explanation by the introduction of quotations, but it may be well to subjoin here the three following extracts from the authors mentioned, by way of completing that explanation, which would be left less intelligible without them:—

FRIES.—“*E. limosum* L. et *fluviale* L. utique nimis affinia sunt sed apud nos (circa Upsaliam vulgaris) facile discernuntur et a nullo Botanicorum Suecorum, ad prisca contrahenda, quam nova distinguenda promptiorum, conjuncta. Ut pateat an nostra cum exterorum prorsus convenient utruque dedimus in H. N. XI.” (*Summa Vegetabilium Scandinaviæ*, p. 251).

BABINGTON.—“*E. limosum* (L.)” “*α. limosum*; teeth of the sheaths *not furrowed*, sheaths of the branches green with minute black tips to the *round-backed ribs*, branches often wanting. *E. limosum* Fries, *β. fluviale*; stem more deeply furrowed, teeth of the sheaths short dark brown acute: *rib furrowed on the back*. *E. fluviale* (L.) Fries.—In stagnant water. [*β. Reported to be a native*].” (*Manual*, p. 404).

REVIEWER.—“In getting up Catalogues of this kind two things are to be considered: *first*, accuracy; *secondly*, intelligibility: we conceive both of these are achieved in an eminent degree in the publication before us, yet in some cases we detect a little departure from rigid accuracy, not unadvisedly, but from some motive of expediency, which the authors, had they space, would doubtless explain; for instance, take the last species in the rejected list, *Equisetum fluviale*, a common English plant, to which Linneus and all continental authors apply this name. A foreigner must suppose that the well-known *Equisetum fluviale*, so common on the continent, has been recorded as an inhabitant of Britain, but that Messrs. Dennes and Watson having found that record incorrect, expunge the name: they would have no idea that it is only the Linnean *name* that is struck out, the *plant* being one of our commonest species.” (*Phytol.* ii. 1051 *et seq.*).

I cannot see that a foreigner would be entitled to “suppose” the case above suggested for him by the reviewer; and for the very suffi-

cient reason that the facts of the case are otherwise, and are so stated as clearly as the general plan of the Catalogue would admit in the individual instance. The retention of *E. limosum* in the general list of the 'London Catalogue' should show that our common plant, so commonly mentioned by that name, is held a true native; while the position of *E. fluviatile* among the "Excluded Species," with the inverted commas ("L."), and the added note of interrogation (?), should show also that something more than a mere name was intended to be quoted and queried. The latter is the *plant* mentioned under the same name by Fries and Babington, concerning which some more satisfactory information seems required before we can introduce it into our list of certainties.

Equisetum limosum (Lond. Cat.) = *E. limosum* of Smith, Hooker, Babington, &c.; *E. fluviatile* of Newman.

Equisetum fluviatile (Lond. Cat.) = *E. limosum*, β . *fluviatile* of Babington; *not* *E. fluviatile* of Newman.

HEWETT C. WATSON.

Thames Ditton, December 4, 1847.

Notice of the 'London Journal of Botany,' Nos. 69 to 72, dated September to December, 1847.

No. 69. Contents: "Contributions towards a Flora of Brazil, being the Characters of several new Species of Compositæ, belonging to the tribes Mutisiaceæ and Nassauviaceæ," by George Gardner, Esq. "Botanical Characters of a new Plant, *Isonandra Gutta*, yielding the Gutta Percha of Commerce," by Sir W. J. Hooker. "Botanical Information," including a notice of Miers's Illustrations of South American Plants; a notice of Pritzel's 'Thesaurus Literaturæ Botanicæ;' advertisement or notice of an herbarium of French plants on sale; continuation of the list of Mr. Thomas Lobb's Malayan (Java) Plants; notes on Plants of the British Flora, namely, *Calamagrostis stricta* (Nutt.), *Phalaris utriculata* (Linn.), *Allium sphærocephalum* (Linn.), *Simethis bicolor* (Kunth), and *Trifolium strictum* (Linn.); Tussack Grass; Notes of a Continental Tour; Excursion to Mount Olympus, Van Diemen's Land, by R. Gunn, Esq.; Boissier on Spanish Botany; *Myosurus cristatus* (Benth); Two new Species of *Peperomia* described by Professor Miquel; 'Floræ Tasmaniæ Spicilegium,' by Dr. J. D. Hooker.

Nos. 70 to 72. Contents: Continuation of Dr. Hooker's 'Floræ

Tasmanniae Spicilegium; 'Decades of Fungi,' by the Rev. M. J. Berkeley. "Prodromus Monographiæ Ficum," by Professor Miquel. And the same Monograph is continued wholly through No. 71 and part of No. 72. The latter part of No. 72 being occupied by a paper "Sur la Famille des Linées," by Dr. Planchon.

When any copy of the 'London Journal of Botany' chances to fall under our eyes, on the table of a subscriber, we usually find that portion of it which includes the miscellaneous articles, under the head of "Botanical Information," to be the only portion which has been looked into. The large remainder is usually in that undisturbed state which the vendors of old books so much delight to announce, namely, with pages "uncut." We presume that two circumstances may be taken into account for an explanation of this difference. Most of the other articles, albeit often valuable contributions to botanical science, are still those long and heavy papers on descriptive botany which are rather out of place in a journal, and which are seldom looked at by the readers of periodicals. The "Botanical Information" contains those announcements, on the other hand, for which almost only is a periodical taken and read. Botanists turn to the pages so intitled, because in those pages they expect the intelligence which they wish to have, and which it is usually understood to be the province of a journal to supply them with. This is the first circumstance which causes the pages in question to be cut open, while the rest are neglected. The second circumstance to which we allude is, that the words "Botanical Information," in the table of contents, convey no intimation whatever of the items or kind of intelligence to be found under that general title; and it is thus rendered necessary that the pages should be cut, in order to discover the subordinate titles or subjects of the "Information." We wish the learned editor would take the hint thus offered, and increase the usefulness of his useful periodical by acting upon it. First, we could wish that he would give, in the table of contents, the title or subject of each separate article. Secondly, we should be glad to see more news of what is doing in the botanical world; and for this we should be well content to lose any quantity of descriptions of species. The four Nos. of the 'London Journal of Botany,' now before us, contain 160 pages of letter-press, equal to about 100 of the large pages of the 'Phytologist.' Of these 160 pages no less than 128 are devoted to three articles, the object of which is to describe species, and all three of which are still only portions or continuations of longer articles on the same subjects. This is, in truth, printing books in fragments, under the cover and

title of a monthly Journal. The three articles are important contributions to science, undoubtedly of high merit in themselves, and include only matters proper and necessary to be recorded. But nevertheless, we submit, they are not the kind of articles which are looked for by subscribers to a periodical. A good description of the Plants of Van Diemen's Land, for example, in a volume or series of volumes, as a distinct work, would be now a very valuable contribution to the literature of botany; but broken up into incomplete fragments, detached from each other by the miscellanies of a periodical, the list appears in a most inconvenient form itself, and seems greatly out of place. We give these hints in a spirit of friendliness to the 'London Journal,' which we would gladly see rendered as much as possible a full and undiluted *Journal* of botany: at present, it is a Miscellany (the original title) of high value, but scarcely a Journal.

Among the "Botanical Information" in Number 69 are some items of intelligence which will have interest for the devotee of British botany. We are there assured that the *Calamagrostis stricta* from Oakmere, Cheshire, "is identical with the Forfarshire plant, found by the late Mr. G. Don," and "quite distinct from *C. lapponica*, of which the only British station is in the county of Antrim, Ireland." By some inadvertence (arising, we understand, from the hasty inspection of an imperfect specimen), Mr. Hussey's discovery of *Phalaris paradoxa*, "in a field, near Swanage, Dorset," is announced for another species, or rather genus, the *Alopecurus utriculatus*, placed by Linneus under the genus *Phalaris*. The two grasses resemble each other in their peculiarly inflated sheaths or bases of the leaves, and when the upper portion of the dense panicle of *Phalaris paradoxa* happens to be lost by breaking off, there is truly a close eye-sight resemblance between them, dissimilar as they are found to be on closer examination of the flowers (see *Phytol.* ii. 961). The discovery of *Simethis bicolor* (*Kunth*) in Hampshire, and of *Allium sphærocephalum* (*Linn.*) near Bristol, were announced simultaneously in the 'Phytologist' (see *Phytol.* ii. pp. 926 and 961). The other British plant mentioned is the *Trifolium strictum* (*Linn.*), discovered in two localities in Cornwall, by the Rev. C. A. Johns; from whose pen there is an interesting note on this one along with other small leguminose plants of that county.

Dr. Planchon's article on the Linaceæ is elaborately worked out, and is rendered somewhat remarkable by the addition of a large table in which the geographical distribution of the species is shown under

various conditions of latitude and longitude, and of botanical and geographical grouping, in an ingenious and comprehensive manner, and which must have demanded considerable patience and knowledge in the author of the paper.

C.

DUNDEE NATURALISTS' ASSOCIATION.

Monday, Dec. 6th, 1847.—Mr. George Lawson, President, in the chair.

Mr. Jackson presented for examination specimens of the following plants that had been sent him for the Association, by Mr. Alexander Croall, and some interesting notes by Mr. Croall on the various species were read.

Pinguicula alpina, L. From the Moors of Rose-haugh, in Ross-shire. From Mr. Croall's note accompanying the specimen, it would appear that this very rare and interesting plant is on the point of extermination, in consequence of the progress of cultivation in the district where it grows.

Bartramidula Wilsoni, Bruch & Schimper. From the head of Glen Dole, Clova, Forfarshire (see *Phytol.* ii. 1017).

Gymnostomum Donianum, Sm. From Cawdor burn, Nairnshire.

Placodium plumbeum, Ach. From trees in Cawdor wood, Nairnshire.

Mr. Lawson exhibited specimens of *Cyphella muscigena*, *Fr.* (determined by the Rev. M. J. Berkeley), from the Den of Mains, and Mr. Ogilvie produced several lichens from the same locality.

The following botanical papers were read:—

1. Account of a botanical excursion to the Reeky Linn, by Mr. William Jackson. Amongst the plants found by Mr. J. in the immediate vicinity of the Falls, occur the following: *Bryum crudum*, *B. turbinatum*, *B. julaceum*, *B. androgynum*, *Hypnum commutatum*, *H. complanatum*, *H. dendroides*, *H. filicinum*, *H. atro-virens*, *H. pulchellum*, *Didymodon Bruntoni*, *Trichostomum aciculare*, *T. polyphyl-lum*, *Bartramia pomiformis*, β ., *B. Halleriana*, *B. gracilis*, *Dicranum scoparium*, *Grimmia rivularis*, *G. apocarpa* (and var. β . *stricta*), *Neckera crispa*, *Cinclidotus fontinaloides*, *Tetraxis pellucida*, *Anomodon viticulosus*, *A. curtispiculum*, *Orthotrichum affine*, *O. crispum*, *Jungermannia epiphylla*, *J. pubescens*, *J. Lyoni*, *J. ciliaris*, *J. nemorosa*, *J. platyphylla*, *J. albicans*, *J. Blasia*.

2. List of the rarer flowering plants observed in the county of Fife,

by Mr. George Lawson. Specimens were exhibited of the principal plants in the list,—and Mr. Lawson made some remarks on the nature of some of the localities mentioned.*

Robert Huish, Esq., London, was elected an honorary member. Mr. Thomas Simpson, Beadle, Yorkshire, was elected a fellow. Mr. David Gorrie, Annat Cottage, Eurol, Perthshire, was elected a corresponding member.

GEORGE LAWSON, P.

212, Perth Road, Dundee,
December, 1847.

BOTANICAL SOCIETY OF LONDON.

Monday, November 29th, 1847.—Eleventh anniversary meeting. John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from the Rev. G. W. Sandys, Mr. J. D. Salmon, Mr. John Ray, and Mr. French.

The Secretary read the annual report of the council, from which it appeared that thirty-two members had been elected since the last anniversary, being a larger number than had been elected in any previous year since the establishment of the Society. In order to carry out to its fullest extent the leading object of the Society, namely, the exchange of specimens, the herbarium-committee had used every exertion to obtain the rarer and more interesting plants, and numerous valuable specimens (including a large number of duplicates) had been received, and would shortly be distributed to the members. The council had deputed Mr. Hewett Watson and the Secretary to prepare a second edition of the ‘London Catalogue of British Plants.’ The report was unanimously adopted. A ballot then took place for the council for the ensuing year, when J. E. Gray, Esq., F.R.S., was re-elected President, and John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., were nominated Vice-Presidents; J. Coppin, Esq., M.A., G. W. Francis, Esq., F.L.S., and J. Parking, M.D., were elected new members of the council in the room of Dr. Cooke, F.L.S., F. Barham, Esq., and J. M. Rich, Esq., who retire in rotation; Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. G. Rich, were respectively re-elected, Treasurer, Secretary, and Librarian.—*G. E. D.*

* The list will appear in an early number of the ‘Phytologist.’

A List of Rubi observed near London in 1846-7, with Observations.

By THOMAS MEEHAN.

THE geographical distribution of the various forms of British Rubi being as yet imperfectly understood, it occurred to me to make notes of the habitats of those I might meet with in my botanical excursions, and to offer them to the readers of the 'Phytologist.' The following list comprises all that I have observed for the two last seasons, but my opportunities of collecting have been few, and I have no doubt that a closer examination would discover many which are not inserted in my list, and prove Surrey especially to be as rich in Rubi as Sussex and Hampshire proverbially are. I may also add that several forms are not included, because I was not in a position to determine them with accuracy.

R. Idæus (L.). Weybridge, and many parts of West Surrey.

———— *β. trifolius* (B. Salt.). Esher Common.

— *suberectus* (Ands.). Wimbledon Common.

— *nitidus* (W. et N.). Woods, Dorking.

— *corylifolius* (Sm.). Surrey; Middlesex plentifully.

— *cordifolius* (W. et N.). Wimbledon; Bagshot; Dorking.

— *discolor* (W. et N.). Abundant everywhere.

— *leucostachys* (Sm.). Ealing; Esher; Dorking.

———— *β. vestitus* (B. Salt.). Woods, Wimbledon and Dorking.

———— *γ. argenteus* (B. Salt.). Mortlake.

— *carpinifolius* (W. et N.). Wimbledon Common.

— *macrophyllus* (W. et N.). Ealing; Chiswick.

— *rudis* (W.). Wimbledon Common.

— *Radula α.* (B. Salt.). Hedge near Egham.

— *fusco-ater* (W.). Acton.

— *Kœhleri* (Weihe).

———— *ε. fuscus* (Bab.). Near Esher.

— *hirtus* (W. et N.). Road-side between Wandsworth and Wimbledon Common.

— *glandulosus, γ. rosaceus* (Bell Salt.). Wimbledon Common.

— *Wahlebergii* (Arot.). Foot-path between Brentford and Ealing.

— *cæsius* (Linn.). Plentiful in hedges.

The above nomenclature is that adopted by Babington in his Synopsis.

R. corylifolius presents various appearances in different situations.

There are several forms of *R. discolor* in this part of Surrey, but I confess I can make nothing of them. *R. rosaceus* and *hirtus* are not plentiful.

It is to be regretted that so much indisposition to study this genus of British plants should exist. Perhaps few tribes afford such abundant opportunities of examining the vexed question of the nature of species as this, and yet this very fact is made an objection to their study! "They are so changeable," is a common expression, "my opinion is that there is not a dozen good species," is generally the encouraging stimulus the student of *Rubi* receives. But the question still remains, what is a species? and what is a variety? I do not clearly understand what Mr. Babington's ideas of species and varieties are, as exemplified in his *Synopsis*. I believe that the varieties of the *Synopsis* are principally dependent on their aptability to *approach* some other (normal) form when growing in the same soil and situation with it. I believe this was the reason for deciding *R. vestitus* of the '*Rubi Germanici*,' and *R. villicaulis* of Babington's *Manual*, as mere varieties of *R. leucostachys* (Sm.). I find this "var." *argenteus* growing in a wet ditch by the side of the Thames at Mortlake, and exactly agreeing with a specimen gathered in a dry wood near Ryde. If *argenteus* is *R. leucostachys*, and merely varying through difference in its place of growth, whence the circumstance I have related? or will different situations produce the *same* result?

We gardeners, who are in the habit of raising seedlings of florists' flowers, generally understand a variety to be a form produced from seed, and capable of reproducing seed, differing in some respects from its parent, in contradistinction to a mule or hybrid, which is not capable of reproducing seed. If this be the true definition of a variety, can these so-called varieties of *Rubi* be considered as truly such? The various varieties of the apple, the gooseberry and other fruit-trees still retain their several characteristics, although grown in the same soil and situations together, and why should not *true* varieties of *Rubi*?

THOMAS MEEHAN.

Kew, December 17th, 1847.

Occurrence of Adiantum Capillus-Veneris in Derbyshire, Asplenium germanicum in Borrowdale, and Lycopodium annotinum on Bow-Fell. By H. ECROYD SMITH, Esq.

SOME of the readers of the 'Phytologist' may be interested in hearing of the following localities for one or two of our rarer ferns.

On recently revising my *hortus siccus*, I was reminded of a habitat of that rare and lovely little species *Adiantum Capillus-Veneris*,—at once novel, singular, and interesting (at least, as regards Britain), *viz.*, the Peak of Derbyshire. I believe it had not been previously noticed except in sea-caves on the coast of two English counties, Devon and Cornwall; but here we meet it under a peculiar aspect, flourishing in the very heart of the island, and in a wild and bleak situation. I found the plant in 1844, and though only seedlings were obtained, others matured, may be ready to repay a more diligent search than I was able to undertake at the time.

The *Asplenium germanicum* has been noticed in my present neighbourhood; and, as far as I am aware, this is the first recorded English locality. It was found in the summer of 1846; by Wm. Greaves and Jos. Flintoft, the latter of whom executed the celebrated model of the Lake District; it was growing in the cleft of a rock in the wilds of Borrowdale.

On a recent visit to Bow-Fell I met with *Lycopodium annotinum* in several places on its sides, where the rocks are heaped in the greatest confusion, and twining among shady boulders carpeted with *Hymenophyllum Wilsoni*.

H. ECROYD SMITH.

Bay Cottage, Ambleside,
December 23rd, 1847.

On the Organogeny of irregular Corollas. By F. BARNEOUD. Extracted from the 'Comptes Rendus' for August 16, 1847, as translated in the 'Annals and Magazine of Natural History' for December, 1847.

IN the memoir which I have the honour of submitting to the Academy, I have described the results of further researches on the organogeny of irregular corollas. I shall briefly indicate the principle in this abstract. In the monocotyledons the study of the develop-

ment of the flower of the *Canneæ* afforded direct proof that the stamina only metamorphosed into petals in a more or less complete manner from their first appearance, which impart to the corolla its irregular aspect. The two outer ternary verticils are always developed *one after the other*, precisely as the calyx and corolla of dicotyledons. This law, which I have verified in more than ten families, appears to be very general among monocotyledonous plants. In the dicotyledons, the adult corolla of the *Acanthaceæ*, *Globulariæ*, *Gesneriaceæ*, *Bignoniaceæ* and *Goodeniaceæ*, which is frequently far from regular, presents itself on its first appearance in the form of a small cupule with five very equal and rounded teeth at the border, but this state is more or less ephemeral according to the genera and species. Very soon the unequal elongation of the divisions of the corolla, their different degrees of adhesion or their partial atrophy, determine a very marked irregularity. The same applies with respect to the flower of *Centranthus* in the *Valerianeæ*, to that of the *Lobeliaceæ* and of the *Scrophulariaceæ*. In this last family the corolla of the *Calceolariæ*, one of the most anomalous of the vegetable kingdom, is reduced at its origin to a scooped-out cupola, which is very regular and furnished with four equal minute teeth; the nascent calyx likewise presents but four divisions.

The highly remarkable floral envelope of *Begoniaceæ* likewise appears, at the period of its formation, as regards both male and female flowers, in the form of a continuous ring, and exhibits at its circumference five very equal small segments; but there are some of them, especially in the male flowers, which disappear entirely or which become in part atrophied, so as to give to the coloured envelope that peculiar structure which forms its principal character.

From the facts detailed in my two memoirs and derived from the study of genera with irregular flowers from twenty-five natural families, I feel justified in deducing the following consequences:—

1. The simple theory announced by DeCandolle as early as 1813, according to which the irregular flowers should be referred to regular types from which they appear to have degenerated, must be admitted as true, although conceived *à priori*, and solely from the attentive examination of some cases of *Peloria*, or of flowers which have become regular at the adult age. But if in the actual state of science, organogeny affords us a direct demonstration of this important principle of botanical philosophy, I must add, that the symmetry of an irregular flower even at its very origin does not always strictly exist; it is frequently merely indicated by empty places where the absent organs

are never developed, as is very readily seen with respect to the stamina of those plants. We may therefore infer among the ordinary causes of disturbance in the floral symmetry, such as abortion, multiplication, degenerescence and adhesion, likewise that of the nondevelopment of organs.

2. With respect to the origin of the union of the stamina called monadelphous, diadelphous, polyadelphous and synantherous, their adhesion is always subsequent to their first formation. The family of the Stylidæ (*Stylidium adnatum*) alone appears to me to furnish a remarkable exception to this rule as regards the adhesion of the styles.

I shall here enumerate three principal kinds of irregularity among all irregular corollas that I have examined:—

1. Irregularity by simple inequality of development among the several segments of the corolla, with complication of adhesion or complete atrophy or arrest of growth; this is the most common.

2. Irregularity by deviation, where the segments, although equal, turn all of the same side; for instance, the corolla of *Scævola levigata* (Goodeniaceæ), and the genera with ligulate florets of the Compositæ.

3. Irregularity by simple metamorphosis of the stamina, as in the family of the Cannææ, and probably that of the Zingiberaceæ.

TYNESIDE NATURALISTS' FIELD CLUB.

IN accordance with an invitation of the Berwickshire Naturalists' Field Club, the last meeting of the Tyneside Club for the season was held at Alnwick, on Wednesday, September 22, in conjunction with the former Society. A few of the members of the Durham Botanical Society also joined the party. The members present breakfasted with Mr. Dickson, the Clerk of the Peace for Northumberland, after which they proceeded to the Castle, when, after spending a short time, they assembled at the Swan Inn for the transaction of business. It being the anniversary meeting of the Berwickshire Club, the annual address of the President of that body on his retirement from office was read, and his successor was elected. There were no long papers read or presented by either society. Mr. Selby, of Twizel House, read a short notice of the occurrence of some birds and insects in greater abundance than usual, during the last year. Amongst

other insects he mentioned the death's-head hawk moth and the *Convolvulus* hawk moth. Of the former he had procured several caterpillars, but had not been able to rear any moths. He mentioned that when he was unable to procure potato leaves, on which plant the death's-head moth is usually found in this country, he had substituted those of a plant of the same genus, the common nightshade or bitter-sweet of the hedges (*Solanum Dulcamara*), and found that the moth fed as freely on it as on the potato. Mr. Selby described a caterpillar as large as that of the death's-head moth, but differing from it in colour and in the shape of its markings, which he had also found on the potato. This caterpillar he thought might be a variety of that of the death's-head moth, but he had not been able to meet with any account of that species in which such a variety was described, nor was he aware of any other species to which it could be assigned.—Mr. Alder, of Newcastle, read an account of the peculiar character of the animal of *Kellia suborbicularis*, a bivalve mollusk, not uncommon on our shores, showing it to be a new type of form among the bivalves, differing from the others in having a large anterior tube. He also exhibited a drawing, and read a description of the animal of *Lepton squamosum*, an allied genus, likewise very peculiar in its characters. He took the opportunity of Dr. Johnston being present, to draw his attention to a curious new British zoophyte, of very anomalous characters, found by Mr. Cocks, at Falmouth, and examined by Mr. Alder, in conjunction with that gentleman, during a recent visit to Cornwall. A drawing of the animal was exhibited to the meeting, and a verbal description given. Some account of its mode of development was also communicated. Dr. Johnston considered it quite distinct from anything with which he was acquainted. Mr. Tate, of Alnwick, exhibited several specimens of mountain-limestone fossils, remarkable for their perfection and beauty. This gentleman possesses one of the best collections of the fossils of this formation in the kingdom. After the business-matters were concluded, and the rain had ceased, which fell heavily during the middle of the day, some of the party returned to the Castle, where they had spent a portion of the morning, and where, by the courtesy of the noble owner, every facility was given for the examination, both of its feudal remains and of its modern decorations. There is a small museum containing objects of antiquity as well as specimens in most of the departments of Natural History; amongst the latter are some very interesting fossil remains. The most remarkable part of the collection, however, is that containing the Egyptian antiquities, obtained by the noble Duke

himself when in Egypt. On leaving the Castle the party had a short walk through the park, and then returned to the White Swan, where they sat down to an excellent dinner, to which the thoughtful courtesy of the Duchess had added a splendid dessert. The only business transacted after dinner was the election of three new members to the Berwickshire Club, and the proposal of a vote of thanks on the part of the three Clubs to the Duke and Duchess of Northumberland for the attention they had shown to the meeting. The invitation from the Berwickshire Club was made for "the promotion of friendly feelings" between the Clubs, and when the party broke up, which it did at an early hour, every one felt that the intended object had been attained.

[The Editor is aware that this Report is chiefly zoological, but he is desirous of continuing the series of Reports from provincial associations, hoping that good will result from them].

Notice of the 'Transactions of the Linnean Society of London,' Vol. xx., Parts 1 and 2.

THESE two parts of the Transactions are peculiarly rich in Botany, no fewer than eleven of the seventeen papers being on botanical subjects. Unfortunately, however, though exceedingly valuable in themselves, these papers all relate to exotic plants, and consequently possess less interest for the British botanist than is sometimes the case when the plants of our own country are treated of: but an abstract will not be out of place in the pages of the 'Phytologist.'

I. *On the Development of the Ovulum in Avicennia.* By the late William Griffith, Esq., F.L.S., &c.

A companion paper to the previous communications by the same botanist upon the development of the seed and embryo in *Santalum* and *Osyris*; the subject is, however, too intricate to be fully understood without reference to the illustrations. Mr. Griffith states that he was unable clearly to ascertain "the absolute relations with the embryo-sac established by the pollen-tube after it had reached the sac, still less the absolute relations which the end of the pollen-tube bore to the nascent embryo;" he is, however, induced to believe, from the indications furnished by his sketches, that the pollen-tube penetrates into the sac, "as far as the spot in which the embryo makes its first appearance."

III. *Descriptions of some unpublished Species of Plants from North-western India.* By M. Pakenham Edgeworth, Esq., F.L.S., Bengal Civil Service.

During a residence of several years in the north-west provinces of Bengal, Mr. Edgeworth collected with his own hands about 2000 species of plants. Of these the Acanthaceæ were sent to Professor Nees von Esenbeck; the Gramineæ to Messrs. Ruprecht and K. von Meyer; the Carices to Dr. Boott; and with these exceptions, and that of the Corolliflora from Bignoniaceæ onwards, which were forwarded to De Candolle, the remainder of the collection was placed in the hands of Mr. G. Bentham. One hundred and forty-four species are described in the present paper, including some remarkable forms, "as, for example, a Clematis with bearded filaments and introrse anthers; an Inula with white flowers and the habit of an Aster; and a Commelyneous plant with a twining stem:" this is figured under the name of *Streptolirion volubile*, and is a very curious and beautiful species. Others of Mr. Edgeworth's new plants are remarkable as being Indian species of genera hitherto looked upon as exclusively American.

The following remarks, relating to a naturalized British genus, are interesting, and may be quoted entire.

"I have ventured to propose a modification of the character of *Impatiens*, because I consider M. Kunth's theory of the flower to be not entirely correct. He conceives the superior petal to be wanting, and the two superior sepals to be united into the vexillum, regarding the keel usually more or less present on that to be a mark of the junction. But I have found the two superior sepals actually present in some species; they are distinct in *I. amplexicaulis* and *moschata*, herein described, and even more so, though still very minute, in the Cashmir species introduced into England by Dr. Royle under the name of *I. glanduligera*, and figured by him in his '*Illustrations of Himalayan Botany.*' In other species, a rudimentary scale, or in others, again, a gland, supplies their place; while in many I have been totally unable to detect any. I think, therefore, that I am justified in considering the vexillum as a single petal, and not as composed of two sepals united. I have since found that a similar view has been taken by M. Røper, in the '*Linnæa*,' ix. 121."—p. 37.

The generic character of *Impatiens*, as proposed by Mr. Edgeworth, now stands as follows:—Sepals 5; the two upper ones small, sometimes wanting; two lateral simple; the lower one larger, more or less inflated and spurred. Petals 5; upper one between the two

scale-like sepals, large, generally crested on the back (*vexillum*); 4 lateral, two of which on each side cohere and form a bilobed wing.

In a foot-note to *Cuscuta anguina* it is stated that "This name is given in allusion to a superstition of the mountaineers, that crows are in the habit of plucking off sprigs of this and *C. macrantha*, and dropping them into running water, when the sprig becomes a serpent, and fit food for the crow. They likewise imagine that the possession of the root of the *Cuscuta* confers the power of invisibility, and of passing through locks, bars, and doors unhindered."

IV. *On the Indian Species of Balanophora, and on a New Genus of the Family Balanophoræ.* By the late William Griffith, Esq., F.L.S., &c.

We have before mentioned the Balanophoraceæ as a family of Rhizogens (Phytol. ii. 717 &c.); in this paper Mr. Griffith describes five Indian species of the genus from which the family derives its name: he however seems to have felt considerable hesitation in referring these plants to the genus *Balanophora*; they would indeed appear more properly to belong to Dr. Wallich's genus *Sarcocordylis*, which we should hesitate about admitting into the Rhizogens at all. The new genus is named *Phæocordylis*; being diclinous, and the male unknown, the generic character has been drawn up from the female. Its general anatomy would appear to correspond with that of *Balanophora*; its parasitism is also similar; its principal generic distinction appearing to consist in the presence of a number of paraphysiform processes covering the surface of the spike, in its areolation, the sessile solitary ovaria, deciduous styles, and the subpapillose apex of the fruit.

As Mr. Griffith's observations on these plants are founded upon the examination of extensive materials, they are entitled to great weight; we here quote them *in extenso*, regretting that we cannot also reproduce the illustrative figures.

"All the species agree in having an amorphous tuberiform mass, which may be considered as the common axis. This mass is firmly united to the woody system of the roots of the stock, which are ramified in its substance, the bark ceasing along the places of union. The cellular tissue of the mass adheres firmly to the divisions of the roots, which appear to terminate in an abrupt manner. Some of the specimens look like zoophytes adhering to foreign bodies. This common mass or axis is much lobed; the surface is always more or less, and often to a high degree verrucose, the verruæ being variously lobed, and having an appearance that suggests the idea of their being

of an excretory nature. Internally the common mass is mainly composed of cellular tissue, the cells in many instances containing nuclei, and often viscid matter. The vascular bundles are many, without any very evident arrangement, except towards the axes or stems, to which they will be found to converge. They are composed of lax fibres, filled (after maceration at least) with grumous tissue, and short, annular, sometimes partly unrollable vessels.

“ Within the common mass the buds are developed, being protected during their earlier stages by the superficies of the mass, as well as by their own scales, which are then very closely imbricated. The buds subsequently protrude through the common covering, derived from the superficies of the mass, which remains in the shape of an irregularly torn annulus or wrapper.

“ The flower-bearing axes or stems, which appear perhaps generally to be one to each lobe of the common mass, are not isochronous in development. Instead of leaves they present imbricated uncoloured scales. The main bulk of the stem is of nucleary cellular tissue, traversed by longitudinal vasculo-fibrous fascicles, which supply the scales. In the female spikes these are much ramified in the circumference, but they do not, I think, pass into the receptacles or into any of the pistilla.

“ The scales have no cuticle or internal cavities, they never present green colouring matter, and are generally colourless and blackened about their points. They are of a fleshy substance, and are provided with several simple vascular fascicles.

“ The bractææ, which are only developed in the male spikes, are fleshy, abruptly truncate, and more or less canaliculate. In the species in which they are most so, owing to their lateral edges being partly at least in apposition, the flowers appear enclosed in alveoli; and this is particularly evident after the fall of the flowers, when the head of the spike presents a honey-combed appearance. *Balanophora dioica* would appear to have cyathiform or involucelliform bractææ; this probably is a mistake. The vascular bundles are obsolete, appearing rather as streaks of discoloured tissue; in them I have only observed fibres similar to those surrounding the vessels in the longitudinal bundles of the axis.

“ The perianthium, which exists only in the male, is composed of four or five sepals; if five, the fifth is anticonous; their æstivation is valvate, their substance fleshy. I have not detected in them any vascular fascicles, although there is some appearance of their existence within each margin.

“The stamina are completely monadelphous, and, except in *Balanophora polyandra*, are equal in number and opposite to the segments of the perianthium. From having observed certain irregular appearances in the anthers of *Balanophora alveolata*, I think that the type of the anthers of *Balanophora polyandra* may still be reduced to that of the other species. The centre of the antheriferous part of the column has presented one or two large patches of discoloured tissue. The anthers are very large, consisting of two large cells folded longitudinally into the shape of a horse-shoe; they have no endothecal special apparatus; they open longitudinally; their number and structure are best ascertained before dehiscence. The pollen presents nothing peculiar.

“The female stems are, so far as regards scales, &c., like those of the male, but they present no bracteæ, although round the base of the head there appears a tendency in some to their development.

“The female spike to the naked eye has a papillose and a subverrucose appearance; under an ordinary magnifier it appears covered with truncate, areolate, opaque bodies, separated from each other by what appear to be hairs. The truncate areolate bodies will be found on examination to terminate small branches of the spike, on which are arranged (and perhaps exclusively so) the pistilla or female flowers, the styloid terminations of which are the hairs alluded to.

“These pistilla are generally stalked, and appear to be entirely composed of cellular tissue, every cell containing a nucleus. The ovarium is generally ovate, and presents externally the appearance of having a cavity containing a nucleus. This would seem to be its true structure, judging from *Balanophora polyandra*. It is gradually attenuated into a style, which, in its earlier stages at least, is closed at the apex, and does not present any surface like that of an ordinary stigma. The tissue before fecundation is transparent and uncoloured; subsequently to that, the style becomes more or less, often completely, obscured by brown colour.

“The ovulum, which was only observed in *Balanophora polyandra*, and probably in its impregnated state, appeared to be pendulous from the apex of the cavity of the ovarium; its constitution was essentially similar to that of the matured embryo. Of its earlier stages I have no knowledge.

“The pistilla at very early periods are mere ovato-conical extensions of the surface of the spike round the bases of larger extensions of the same surface, which subsequently form the receptacles.

“There is very little difference beyond discolouration and a brit-

tness of tissue between the pistilla of the other species and the fruits of *Balanophora picta*, in which alone I have observed them in their seemingly ripe state; they have nearly the same size and precisely the same disposition.

"The embryo in this species appeared to be free; it is a cellular, undivided, albuminous-looking body, of a fleshy, waxy substance; the cells which compose it are rendered opaque by grumous, molecular and oleaginous matter, which by pressure may be made to escape into the fluid of the field of the microscope in the form of globular bodies of unequal size, which, as I have mentioned, might be mistaken for spores or grains of pollen.

"OBS. III.—The most remarkable parts of the structure of this genus appear to me to be, the extraordinary simplicity of the female flowers, and the remarkable productions of the surface of the spike on which they are arranged.

"From not having observed any change in the numerous pistilla (previously to examining *Balanophora polyandra* and *B. picta*), although the browning of the style, and in some cases adherence of pollen-grains to it, had been distinctly seen, doubts had suggested themselves to me regarding the true nature of the above parts; and these were increased by examinations at very early periods, which did not present any state of the (subsequent) pistilla at all analogous to what occurs perhaps universally in phænogamous angiospermous plants; and also by the permanence and evident importance of the termination of the remarkable receptacles. The same apparent imperfection of the female flowers appears to have struck most observers; and prior to the determination of the point by the examination of the two species alluded to, I was inclined perhaps to consider this remarkable genus as presenting, at least in the specimens before me, an instance of abortion of pistilla, connected with a remarkable gemmiform apparatus.

"The resemblance of the pistilla to the pistilla of Musci, and more especially to those of some evaginulate Hepaticæ, is exceedingly curious and complete; and the same may be said of the effects produced by the action of the pollen on the styles. Indeed, in the development of the female organ, the continuous surface of the style before fecundation, and its obvious perforation after, *Balanophora* presents a direct affinity to a group of plants, with which otherwise it has not a single analogy.

"If these highly remarkable points of structure are borne in mind, I think that it must be conceded that *Balanophora* can in no wise be

associated with such highly-developed families as Rafflesiaceæ and Cytineæ, which, especially the former, are in my opinion to be taken as exhibiting a highly complex formation of even both sexes.

“OBS. IV.—In the present state of our knowledge the *locus naturalis* of the family to which this genus belongs must, it appears to me, at best be founded on conjecture. The assistance of physiology is in the first place essential. Of all the notions, however, regarding it, that of Agardh, as given by Endlicher and Schott in their *Meletemata*, appears to me the most plausible, although he would seem to include *Cynomorium* in the family, and to make it the typical genus. Although I have not observed these plants to have milky juice, or am inclined to lay much stress on some of the signs of affinity given by Agardh, yet in the separation of the sexes, the valvular æstivation of the perianthium, and the apposition of the stamina to its component parts, there are perhaps some signs of affinity; and although the development of the pistilla of *Balanophora* appears to me an insurmountable objection, still they resemble in texture the pistilla of some *Urticeæ* as much, if not more, than those of any other plant.

“As a mere hypothesis, then, I would consider *Balanophoreæ*, judged of chiefly by *Balanophora*, as the homogeneous embryo form of *Urticinæ*, forming a direct passage in one, and usually the more perfect structure, to *Musci* and *Hepaticæ*. But in this, as in all other very doubtful cases, it is much more advisable to consider them as aliens than to force them into any subkingdom, class or order. As aliens, every observing botanist's eye will be upon them. As undoubted citizens, they may find, under authority, places anywhere, and will certainly cease to be general objects of observation.”—p. 96.

V. *On Agaricus crinitus*, Linn., and some allied Species. By the Rev. M. J. Berkeley, M.A., F.L.S., &c.

Among the few though well preserved and interesting Fungi contained in the Linnean herbarium, is one marked *Agaricus crinitus*, a species correctly described, but much misunderstood. In the present memoir Mr. Berkeley describes and illustrates this and four other species under the generic name of *Lentinus*. The plate containing the figures and anatomical details of these species is from the delicate pencil of Mr. J. de C. Sowerby, and beautifully engraved by Jarman. The species are *Lentinus crinitus*, from South America; *L. tener*, Organ Mountains and New Orleans; *L. Schomburgkii*, British Guiana; *L. nigripes*, described by Fries in the ‘*Systema Lentinorum*,’ and now figured for the first time; and *L. Leveillei*, Surinam.

VI. *Caricis Species novæ, vel minus cognitæ.* Auctore Francisco Boott, M.D., S.L.S., &c.

In this elaborate memoir fifty-one species of *Carex* are fully described: they are all exotic, though many of them seem to be closely allied to British species.

VII. *Remarks on the Examination of some Fossil Woods, which tend to elucidate the Structure of certain Tissues in the recent Plant.* By Edwin John Quekett, Esq., F.L.S., &c.

The structure of spiral vessels and the nature of the markings on the woody fibre of the Coniferæ, having excited numerous controversies, Mr. Quekett here gives in detail the results of his microscopical examination of these structures in a fossil state, which go far to exhibit their real nature, and are calculated to be generally interesting to the vegetable physiologist. The first-described shows that the spiral fibre is developed *within* the membranous cylinder with which it is always associated.

“On examining lately a specimen of fossil wood, exhibiting the structure of a palm, I discovered a portion which, instead of being compact like the general mass, broke down on the slightest pressure into minute fragments: on submitting these to the microscope, it was found that they were composed of cylinders more or less elongated and minute rounded granules. On the cylinders there could readily be observed a perfect screw, the helix being either single or compound, and undoubtedly fashioned from the interior of the recent spiral vessels, which fact gives the most satisfactory proof that the fibre is in the interior of the cylinder, as these siliceous casts could not have been so moulded if the spiral fibre had been external. The intervals between the helix show the shape of the fibre, and also show that it was of a solid nature.

“The other point that has occasionally been the subject of controversy, is the nature of the discoid bodies on the woody tissue of coniferous plants. These have been supposed by some persons to be glands; by others to be thicker, and by others again to be thinner places in the membrane forming the walls of the woody fibres. Others have asserted that there is a pore in the centre of each disk, which allows of a communication between adjoining fibres. Later observers, however, have shown that none of the above theories is altogether correct, as the disks are not proper to one woody fibre, but are formed between two contiguous fibres, each contributing to the formation of the disk by having a minute depression, shaped like a saucer, on its exterior, which corresponds exactly to a similar depres-

sion on the contiguous fibre, whereby a small cavity is left between them. These markings or cavities very rarely exist on the sides of the fibres opposed to the pith or bark, but are very numerous on the sides parallel to the medullary rays. Wherever the markings occur, the saucer-shaped depression is thick at the circumference and for some distance towards the centre; but in the centre itself there is a spot so extremely thin and minute, that the light, which has to pass through it, becomes decomposed, and the spot looks either green or red, according to the adjustment of the focus.

“Having received from Professor Bailey a specimen of fossil wood which was found at Fredericksberg in Virginia, I perceived, on submitting it to the microscope, that it would easily break into minute fragments in the direction of the woody fibres, which, when carefully viewed, presented a most beautiful example of casts of woody tissue, with numerous spirals traversing the interior. At various points were arranged the ordinary coniferous dots, and to the outside there adhered small bodies of the same size, which projected beyond the outline of the fibre when seen obliquely, each bearing the precise representation of the coniferous disk. In other parts of the field of view were some of the same bodies detached from the sides of the fibres, which left no doubt that they were casts of the cavities existing in the original plant, and proved the correctness of the view above stated respecting the nature of these minute circular markings. Besides these siliceous bodies in the fragments of the fossil, there were others of such a shape as to leave no doubt that they were casts of the interspaces between the cells or woody fibres.

“There is very little doubt now, from the use of chemical tests, that fossil woods for the most part, or perhaps in all cases, still possess portions of the vegetable tissues, which are cemented together into a compact mass by silica, derived from the water to which the specimen had been subjected. It is difficult to account for the lodgement of silica in the tissues of plants; but it is possible that the molecules of silica, which exist as one of their organic constituents, form the first attractive points, to which others are added by the water, until the whole of the portion of the plant, the woody fibres, the vessels and cells, and the interspaces between these organs, is filled (in fact all places which in the recent plant are filled with sap and air), after the manner that the spicules of silica in a sponge form nuclei for the subsequent deposits of flinty matter, until the whole is converted into a shapeless mass like the original sponge.

“It follows from these observations, as every fibre, cell and spiral

vessel is a closed sac or tube, that when any vegetable tissue becomes fossilized, the silica occupying their interior and their interspaces is, in fact, in detached pieces, each being separated from the adjoining cell or vessel by the intervening walls of the tissue. If fossilization went no further, and there is reason to believe that in some cases it does not, the mass could easily be broken down by slight force, and each original fibre detached from its neighbour on account of the vegetable matter, after long maceration in the silicifying fluid, being almost decomposed. But frequently the process goes further; and as we know how readily vegetable membrane transmits liquids through its substance, it can be easily imagined how silica held in solution in the water would pervade it, and the intercellular spaces and the interior of the woody fibres would be cemented together into one mass of silica.

“The reason why some woods break down more easily than others after being fossilized, I have not yet been able to determine; but it is certain that coniferous woods are found to be the most frequent examples in which the tissue is not cemented, and I imagine that in those woods there is great power of resisting decomposition when immersed in water, or there exists little or no silica as an organized part of their skeleton, so that no points in the membrane for the commencement of deposits are offered; whereas, where silica does exist, the molecules form the first centres, and the whole become cemented together.

“It is thus, I am induced to believe, that silicification in the above instances proceeded so far as to fill the fibres, vessels and cells, and the spaces on their exterior; but as the vegetable membrane was interposed, the complete cohesion of the parts was prevented, and consequently they are now capable of being separated, and the frustules of silica when examined prove to be casts of the interior of the tissues and of the interspaces external to them, thus appearing to offer the most satisfactory evidence respecting the nature of the organs in question.”—p. 149.

IX. *An Enumeration of the Plants of the Galapagos Archipelago, with Descriptions of those which are New.* By Joseph Dalton Hooker, Esq., M.D., F.L.S., &c.

X. *On the Vegetation of the Galapagos Archipelago as compared with that of some other Tropical Islands and of the Continent of America.* By Joseph Dalton Hooker, Esq., M.D., F.R.S., F.L.S., &c.

The materials for constructing this Flora have been for the most part furnished by Charles Darwin, Esq., who drew the attention of the

author "to the striking peculiarities which mark the Flora of the Galapagos group, and to the fact that the plants composing it not only differ from those of any other country, but that each of these islands has some particular productions of its own, often representatives of the species which are found in the others of the group." The total number of species is 239, of which upwards of 100 are described as new. We scarcely see how the plants of these islands can be said to "differ from those of any other country," since by far the greater number are also natives of North and South America, the West India Islands, many tropical countries, and some few even of Britain. This statement is indeed modified by Dr. Hooker in his remarks on the vegetation of the group, wherein the number of species differing from those of other countries is more properly stated to be one half the entire series; "a peculiarity shared by no other tract of land of equal size, excepting, perhaps, the Sandwich group." The author further states the result of his examination of the plants of the Galapagos to have shown "that the relationship of the Flora to that of the adjacent continent is a double one, the peculiar or new species being for the most part allied to plants of the cooler parts of America, or the uplands of the tropical latitudes, whilst the non-peculiar are the same as abound chiefly in the hot and damper regions, as the West Indian islands and the shores of the Gulf of Mexico; also that, as is the case with the Fauna, many of the species, and these the most remarkable, are confined to one islet of the group, and often represented in others by similar, but specifically very distinct congeners."

The geographical distribution of plants is one of the most interesting branches of botanical science; and to this subject these two papers are a very valuable contribution. Dr. Hooker enters at considerable length into the consideration of the mode by which each district of the earth, whether local or general, originally became possessed of its own peculiar vegetation, and the means whereby the seeds of certain plants were primarily transported and deposited in the localities on which they have subsequently conferred some of the most striking features. These means of transport, as more peculiarly respecting the Galapageian plants, he classes under the several heads of "oceanic and aerial currents, the passage of birds, and man." The conveyance of the majority of the littoral species, as well as of several of the non-littorals, is most probably due to the first-named of these agents; while such species as have small seeds, or seeds furnished with wings or other appendages, may be looked upon as well adapted for conveyance by the winds: and the agency of birds and of man to

the same end is well known. Dr. Hooker describes the course of the principal oceanic currents by which many of the Galapageian plants have probably been conveyed to their present localities; and concludes this part of his essay by showing the adaptation of the seeds of several plants for transportation, arranged under their natural orders, as follows:—

“*Menispermæ*.—Cissampelos presents a hard inner coat of the pericarp. Albumen scanty, fleshy.

“*Cruciferae*.—Senebiera didyma, the only Galapageian species, forms an exception to the general rule, that the plants of this order are impatient of transport from the oily nature of their cotyledons; it is, as DeCandolle remarks, probably a native of Buenos Ayres, whence it has been diffused over nearly all the globe, and is continuing to spread.

“*Curvembryosæ*.—An artificial group, sufficiently natural, however, for the present purpose. Seeds very minute in some, as Drymaria and Mollugo. The Chenopodeæ, Phytolacceæ and Portulacææ have a constitutional predilection to salt water. Albumen farinaceous in the greater part of the Galapageian genera.

“*Malvaceæ*.—Indurated pericarp of many. The floral envelopes of Malachra are well adapted to stick to various means of transport.

“*Sapindaceæ*.—Crustaceous testa and exalbuminous seed of Cardiospermum.

“*Zygophylleæ*.—Tribulus cistoides offers singular advantages for transportation in its woody seed-vessels, their spines beset with reversed prickles, and exalbuminous seeds.

“*Xanthoxyleæ*.—Osseous testa of Xanthoxylum.

“*Simarubeæ*.—Castela has a crustaceous endocarp and scanty albumen.

“*Leguminosæ*.—Generally firm testa, exalbuminous seeds, and great power of some to retain vitality.

“*Rubiaceæ*.—The densely corneous albumen of many may afford a sufficient protection to the seed.

“*Umbelliferae*.—Helosciadium laciniatum is one of the few species enjoying a wide range, for which I can offer no explanation.

“*Compositæ*.—Exalbuminous seed. Pappus of Baccharis and adhesive pubescence of Siegesbeckia orientalis.

“*Lobeliaceæ* and *Scrophularinæ*.—Very minute seeds of Scoparia dulcis and Lobelia Xalapensis.

- “*Rhizophora*, *Avicennia* and *Scævola*.—These all have a predilection for salt water, and constitutional power in the embryo of resisting its destructive effects. *Scævola* has a hard putamen and scanty carnose albumen; the other species are exalbuminous.
- “*Apocynæ*.—*Vallesia* I believe to be a salt-marsh or sea-side plant; it has a scanty albumen.
- “*Convolvulacæ*.—These have a scanty mucilaginous albumen. Two of them, *Ipomæa maritima* and *Calystegia Soldanella*, are sea-side species, with particularly wide ranges.
- “*Solanæ*.—Small seeds and adhesive glands of *Nicotiana glutinosa*; indurated osseous testa of *Dictyocalyx*, *Solanum* and *Lycopersicum*.
- “*Verbenacæ*.—Exalbuminous embryo and osseous endocarp of *Clerodendron* and *Lantana*.
- “*Labiata*, *Cordiaceæ* and *Boraginæ*.—Nucumentaceous pericarps and very scanty albumen. *Cordia* and *Boraginæ* are exalbuminous.
- “*Acanthacæ*.—Exalbuminous hooked seeds.
- “*Plantaginæ*.—Very dense corneous albumen.
- “*Plumbaginæ* and *Plantaginæ*.—Viscid glands on calyx, and hooked prickles of some *Pisoniæ*.
- “*Euphorbiacæ* and *Urticæ*.—Non-peculiar species of these may have been introduced through the agency of man into Charles Island.
- “*Hypoxideæ* and *Commelineæ* offer no apparent facilities for the extraordinary range of the two species that represent these orders.
- “*Cyperacæ*.—These have some facilities for adhesion to foreign substances, and the firm nature of the pericarp, further covered by the coalescing scales of the perianth, are protections.
- “*Graminæ*.—The ciliated glumes of *Poa ciliaris* and the awns of *Setaria Rottleri* are the only very evident aids to migration which I can adduce. The resistance of the seed to the action of salt water must be very slight indeed.
- “*Cryptogamia*.—The excessive minuteness of the sporules in this great class, together with the sporadic appearance of these where they are most minute, and the sudden development of others in suitable situations, leave little doubt that their diffusion by the winds is a never-ceasing though invisible operation.

"From the above it appears, that of the species presumed to be introduced into the Galapagos through various agencies, about 40, or nearly so, have exalbuminous seeds; and of the 50 albuminous-seeded ones, the majority have that substance dense or carnose; some farinaceous, but only two or three oily. These results agree to a considerable extent with what the gardener practically deduces, from the success or failure which attends the planting of seeds from foreign climes. The Leguminosæ and Solaneæ, the very two orders the Galapagos' proportion of which shows so undue an amount of continental American species, are in miscellaneous collections of seeds, those which best retain their vitality during long voyages."—p. 256.

This paper is concluded by comparative enumerations of the species found in the islands of this group.

XI. *On the Ambrosina ciliata of Roxburgh.* By the late William Griffith, Esq., F.L.S., &c.

An exceedingly curious plant, belonging to the Aroideæ, and separated from the genus *Ambrosina* by Fischer, by whom the generic name of *Cryptocoryne* was conferred upon it. Many peculiarities are exhibited by the seeds of this plant during the progress of development, not the least curious of which is the spontaneous separation of the cotyledon from the embryo, about the period of the dehiscence of the fruit. This circumstance presents an exception to the general law of the necessity for the presence of cotyledons. Mr. Griffith, however, and apparently with justice, says he is "inclined to think from this and some other instances, that the presence of a highly developed plumula occasionally obviates this necessity," as is most probably the case with the present plant, in which the plumule is enormously developed. Three plates are filled with details of the anatomical structure of the plant and its organs of impregnation and of reproduction in their various stages of development.

XIV. *Description of the Asafœtida Plant of Central Asia.* By Hugh Falconer, M.D., F.L.S., &c.

The plant here fully described under the name of *Narthex Asafœtida*, is the *Ferula Asafœtida* of Linnæus, and the *Asafœtida Disguensis* or "Hingisch" of Kæmpfer; and is believed not "to have been met with since it was examined *in situ* by that excellent and careful observer upwards of a century and a half ago." Dr. Falconer met with it "growing wild in the valley of Astore, one of the subordinate valleys of the Indus, behind Cashmere, about the middle of September, 1838, when returning from an exploratory journey into the Thibetan region of central Asia." It was then dried up, and the

fruit ripe, so that neither Dr. Falconer nor Kämpfer was able to find the plant in flower. Seeds subsequently procured from the Astore station were distributed to several gardens in this country by Dr. Royle; some of these have vegetated in the Edinburgh Botanic Garden.

XV. *Account of Gamoplexis, an undescribed Genus of Orchideous Plants.* By Hugh Falconer, M.D., F.L.S., &c.

This genus is named Gamoplexis from the cohesion of the segments of the perianth into a nearly regular six-cleft flower, and affords the only known example in this order "of the union of all the divisions of both whorls of the floral envelope into a monophyllous perianth."

"Gamoplexis appears to be a true parasite, but after a peculiar fashion, which disguises the habit. The tuberous rhizoma emits no root-fibres by which to fix itself on other plants, but is itself matted over by their slender rootlets, which ramify upon it in every direction slightly imbedded in its surface, to which they adhere with great tenacity, especially to the scarious margins of the abortive sheath-annuli, giving rise to the appearance of the plant being the subject of a parasitical growth rather than a parasite itself. This I observed in numerous instances; but other cases occurred to me in which the surface of the tubers presented no appearance of the kind; and Unger, in his memoir on parasitical plants, affirms that no true instance of parasitical growth occurs among the Monocotyledones."

This is a splendid orchid, three feet high, the stem being perfectly erect, leafless, with a few sheathing scales, and rising from among the decaying leaves at the roots of trees, like our own *Neottia Nidus-avis*, which was long believed to be parasitical, its true habit being described by Mr. Leighton in his 'Shropshire Flora,' as quoted in Phytol. i. 25.

L.

Occurrence of Linaria supina at Hayle; and Lastræa recurva throughout Cornwall. By THOMAS WESTCOMBE, Esq.

WHEN in Cornwall in the 8th month last, I observed *Linaria supina* growing rather abundantly on the sides of the embankment at Hayle, and if not indigenous in that part of the country, it is certainly well naturalized.

I noticed *Lastræa recurva* almost throughout the county of Cornwall, but particularly abundant about Penzance. I did not see a plant of it in Devonshire.

THOMAS WESTCOMBE.

Worcester, 1st mo. 6th, 1848.

Revivifying Property of the Leicestershire Udora.

By MISS M. KIRBY.

THE other day I was wishing to make an alteration in the arrangement of a specimen of the Leicestershire Udora or Anacharis that had some months since, pasted upon paper, taken its place in my herbarium. On damping the paper for the purpose of disengaging the specimen, my attention was attracted by the avidity with which the plant absorbed the moisture. Upon this I plunged the specimen into water, and had much pleasure in seeing it (with the elasticity of a moss) speedily restored to its original beauty and freshness. Should the Udora of India possess this power of revivification, it may, in the art of sugar-refining, be made serviceable *more than once*. It is in the last stage of sugar-refining that the Udora is used; it is laid upon the loaves, and the water slowly running through, washes the sugar from all remains and tinge of the treacle. This process is repeated *four or five times*, according to the nature of the sugar, &c. The plant is of no other use than to retain the water, and prevent its running too rapidly through the mass, by which too much of the sugar would be dissolved.

Pipe-clay carefully mixed up with water, or a sponge dipped in water, acts in the same manner. See Prof. Brande's 'Manual of Chemistry,' &c., &c.

I leave it to your judgment to decide whether the above is too trivial a circumstance for the Phytologist's notice. I am ignorant whether the fact is already known, and whether the plant is consequently used more than once, therefore mine is a *suggestion* only.

MARY KIRBY.

Friar Lane, Leicester,
January 10th, 1848.

Further Remarks on the Subject of Viola flavicornis.

By EDWARD FORSTER, Esq., V.P.L.S.

I do not wish to trouble you or your readers with the difference of opinion still existing between Mr. Hewett C. Watson and myself in regard to *Viola flavicornis* (vide Phytol. iii. 1020), nor should I do so, had he not called on me to show, if I can, that his Surrey violet, No. 3, differs from *Viola flavicornis* "to any describable degree." I answer, I think I can.

First, because in two specimens of the Surrey violet, No. 3, from St. George's Hill, which Mr. Watson favoured me with, the leaves are *ovate lanceolate*, not heart-shaped, though it is true that on one of them a leaf or two show a very slight tendency at the base to become so: on the other specimen not one can I discover.

Secondly, because in the specimen of the dwarf violet, No. 4, every leaf is decidedly *heart-shaped*, *obtuse*, as described by Smith and figured by Sowerby. If I recollect rightly, they are all so in the authentic specimen in the Smithian herbarium. Whether these are describable differences I leave to the public to determine. Mr. Watson may say they are not, as he has not alluded to the shape of the leaves, nor does the word heart-shaped once appear in his remarks. This investigation leads me to think that the Surrey violet, No. 3, is the typical form of *Viola lactea*, and not a variety as I had conceived.

I have endeavoured to express myself plainly, hoping to be understood; if I am not, I cannot help it, and Mr. Watson must go on persuading those to whom he has distributed the Surrey violet that he has not misled them by naming it *V. flavicornis*. If any one should deign to ask my opinion, I shall not be able to help answering: I still think that he has.

EDWARD FORSTER.

Woodford, 10th January, 1848.

Fact illustrating Mr. Rainey's Observation that Crude Sap ascends through portions of a Plant which have lost their Vitality.

By ISAIAH W. N. KEYS, Esq.

UPON reading in a late number of the 'Phytologist' (Phytol. ii. 1027) that portion of the extracts from Mr. Rainey's work on the Ascent of the Sap, &c., which describes his experiments to prove the passage of

the crude sap through tissue deprived of vitality, I was reminded of a phenomenon corroborative of his conclusions, afforded by the growth of shoots from the extremities of apparently lifeless stems of *Stellaria holostea*.

In numerous cases the writer has observed dry and brittle stalks of this plant, two feet or more in length, surmounted by recent branches in full vigour, and producing flowers as well as foliage in luxuriance. He deems this an interesting fact in connexion with Mr. Rainey's experiments, inasmuch as it exhibits Nature operating wontedly, but secretly, in a manner analogous to that which she adopts under unwonted circumstances in the laboratory.

The writer has often pondered the phenomenon which he now records, but has never arrived at a satisfactory conclusion. It seemed to him a *lusus naturæ*. The theory of Mr. Rainey unravels the mystery.

ISAIAH W. N. KEYS.

Plymouth, 12th January, 1848.

Seasons of the Flowering of Plants sometimes incorrectly given by our Standard Authorities. By ISAIAH W. N. KEYS, Esq.

I HAVE found that the flowering seasons of some of our plants are not so correctly given in the various works on the Flora of Britain as could be desired. It would be impossible, undoubtedly, from the variableness of seasons, to fix exact periods, but might not a closer approximation than we have realized be attained?

Many inconveniences, obvious to all collectors of plants, arise from imperfect or inaccurate information in this *item*.

I am prompted to offer these remarks on the present occasion in consequence of having observed in this neighbourhood, a few days since, some fine specimens in flower of *Koniga maritima*. I have referred to several authorities: they all set down "August and September" as the months during which this plant blossoms. In the course of my short botanical experience I have encountered similar anomalies.

I may add that, in a walk to-day through Saltram Woods, I gathered several flowers of *Vinca minor*. Hooker and Babington (those gentlemen will excuse my using their names thus familiarly) both give "May and June" as the months when this plant is in

bloom. The present winter has certainly been hitherto unusually mild, a circumstance which may be urged to account for the early appearance of the flowers in question. I have, however, invariably found them plentifully in February or March at the latest, and believe that in this neighbourhood at least, they are "few and far between" in the months mentioned by the above authors.

Should these instances be thought worthy of notice in your pages, we may hope for revision in even this subordinate department of botanical description.

ISAIAH W. N. KEYS.

Plymouth, January 12th, 1848.

Death of Mr. James Cruickshanks, a Contributor to the 'Phytologist.'

DIED, at the Crichton Institution, near Dumfries, on the 3rd December last, in the prime of life, Mr. James Cruickshanks, Associate of the Botanical Society of Edinburgh. The deceased was an excellent botanist, and particularly skilled in the obscurer Cryptogamia. In the Musci and Hepaticæ he was remarkably well versed, and had accumulated a very extensive and complete collection of the British species in these interesting orders. Nor were his acquirements confined either to Botany or the other departments of Natural History: he was no less eminent as an artist, a musician and a linguist. Almost wholly self-educated, and with a constitution much impaired by disease, he gave striking proof of what may be accomplished in the pursuit of knowledge under the greatest disadvantages of health and opportunity. In his personal character Mr. Cruickshanks was no less estimable. A pious son, a most faithful friend, generous, modest, and warm-hearted, his premature death is mourned as widely as he was known.

P. G.

Dumfries, January 14, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, January 7, 1848. — John Edward Gray, Esq., F.R.S., President, in the Chair.

Donations to the Library were announced from the Royal Agricultural Society of England, the President, Mr. John Miers, the Rev. W. A. Leighton, Mr. G. H. K. Thwaites and Mr. F. Crisp. British

plants had been received from Mr. Borrer, Dr. Bidwell, Dr. Steele, Mr. W. Mitten and Mrs. Russell. Mr. George Luxford, A.L.S., Lecturer on Botany at St. Thomas's Hospital, Mr. J. W. Salter, F.G.S., of London, the Rev. W. A. Leighton, B.A., of Luciefelde, Shrewsbury, Mr. J. B. French, of Bath, and Mr. Davis, of Lindfield, Sussex, were elected members.

Dr. Planchon communicated some remarks on *Ulmus* (see Phytol. iii. 34).—*G. E. D.*

Remarks on the European Species of Ulmus.

By DR. J. E. PLANCHON.*

THE flattering manner in which the Botanical Society of London was pleased to receive my oral communication on the subject of the European, and more particularly the British species of *Ulmus*, induces me to present to the public the same observations in the more regular and technical form required in scientific writings.

Botanists differ widely in opinion as to the existence of *Ulmus campestris* and *Ulmus montana* as distinct species: some regard them as constituting a single species; others divide them into many; and almost all overlook the real and indubitable marks by which Nature has stamped their title to stand as independent and immutable members of creation. The distinctions to which I allude are to be found in the figures, if correct, which represent these plants in a state of fructification, but the merit of pointing them out as tangible, essential, specific characters belongs, I believe, originally to Gaudin, who, in this and other cases, has given us additional evidence that Nature herself is the best of books for explaining Nature: the characters, from my own observations, when ignorant of those of Gaudin, are simply these:—

In *Ulmus campestris* of Smith the cavity which encloses the seed or ovulum is always almost contiguous to the emarginate apex of the samara or ovary; hence the samara is more or less cuneate-oblong or obovate.

In *Ulmus montana* of Withering, the same cavity is always placed a little below the middle of the samara or ovary and far from its emarginate apex; hence the samara is more or less elliptical.

Such is the main distinction which it was necessary to point out:

* Addressed to G. E. Dennes, Esq., Sec. Bot. Soc. Lond., by whom it is communicated.

other less important characters will be recorded in the following diagnoses, to which I have added from my notes the intricate synonymy of the two species, together with certain well ascertained localities.

Ulmus campestris, Smith et pler. auct.

U. foliis brevius acuminatis, duplicato- vel subsimpliciter serratis; floribus parvis, breve pedicellatis, 4-5-meris, laciniis perianthii ciliatis, samaris *obovatis* vel *oblongo-obovatis*, glabris, apice breve bifidis vel profunde emarginatis, loculo emarginaturæ subcontiguo.

Var. α . vulgaris. Foliis rhomboideo-obovatis, 1-3-poll. longis, supra scabris, subtus pubescentibus.

Ulmus campestris, *Smith, Eng. Bot.* 1886, forma samaræ cuneato-oblonga, sinu emarginaturæ aperto, et *Ulmus suberosa*, *Smith*, l. c. 2161, forma samaræ breve obovata sinu emarginaturæ clauso.

— *campestris* et *Ulmus suberosa*, *Gaudin, Fl. Helv.* ii. 262. *Lindley, Syn. of Brit. Flor.* 226.

— *campestris* α . et β . *Spach* in *Ann. des Sci. Nat.* 2ème sér. xv. 365.

— *pumila*, *Pall. Fl. Ross.* pro parte quoad stirpem Sibiricam arborescentem.

Var. β . major, *Spach*. Omnia prioris, nisi folia, sicut flores et samaræ, majora.

— major, *Smith, Eng. Bot.* 2542. *Lindley, Syn.* 226.

— *Hollandica*, *Mill. ex Smith*.

Var. γ . lævis, *Spach*. Foliis plus minus coriaceis, supra glaberrimis vel scabridis, nitidis, lævibus, subtus præter nervorum axillas barbatus glabris, duplicato- vel subsimpliciter serratis, junioribus, sicut stipulæ et samaræ, glandulis substipitatis sparsis.

Ulmus campestris, γ . lævis, *Spach*, l. c.

— glabra, *Mill., Smith, Eng. Bot.* 2248.

— glabra et carpinifolia, *Lindley, Syn.* 226.

— *pumila*, *Pall.*, pro parte quoad stirpem Caucasianum arborescentem.

— *Sarniensis*, *Loddiges*, fide herb. Lindl.

Var. δ . fastigiata, *Spach*. Omnia præcedentis, sed rami erecto fastigiati, et folia interdum cuspidata.

Ulmus campestris, δ . fastigiata, *Spach*, l. c.

— stricta. *Lindl. Syn.* 227.

HAB. Throughout almost the whole of Europe from Gottland to the Mediterranean, and perhaps, if the *Ulmus campestris*, *Desf.*, belongs to this species, extending even to Mauritania; also in the Caucasian region and in Siberia! But its geographical limits are nowhere fixed. Var. α . Sweden; Oland, *Fries, herb. norm.* Scotland, according to Sir William Hooker, who informs me that it is only cultivated there, whereas *U. montana* is commonly wild. England; no doubt common, but as a special locality recommended to the notice of British botanists, I may observe it is the only form I have seen about Kew, in Surrey. Germany, *Koch.* Hungary, near Buda, *Herb. Lindl.* Switzerland, Valais, *Gaudin, Flor. Helv.* France, no doubt common; Montpellier, *Benth. in Herb. Lindl.* Siberia, *Schlingin in Herb. Lindl. ex Herb. Prescott.* Var. β . seems to be known only in cultivation. Var. γ . Sweden; Gottland, *Fries, Herb. norm. in Herb. Hook.* England; Essex, *Forster ex Smith*; Sussex, near Winchelsea, *Herb. Lindl.*; Shropshire, near Ludlow, *Herb. Lindl.*; Suffolk, near St. Margaret's, *Herb. Lindl.*; Cambridgeshire, *Herb. Leman.* France; Pyrénées or. et centrales, Haute Garvune, near St. Béat, *Benth. in Herb. Lindl.*; Hérault, near Montpellier, *Benth. ibid.* Caucasus, *Prescott in Herb. Lindl.*; Somehetia, Iberia et Karabagh, *Szowitz in Herb. Hook.*; near Sarepta, *Prescott in Herb. Lindl.* Var. δ . Cornwall and north Devon, *Lindley.* France, cultivated in gardens according to Spach.

Ulmus montana, Withering.

U. foliis duplicato-serratis, cuspidatis, supra asperis, subtus pubescentibus; floribus breve pedunculatis, 5-7-meris, laciniis perianthii ciliatis, samaris oblongo- vel late ellipticis, glabris, apice profunde emarginatis, sinu emarginaturæ clauso, loculo infra vel versus medium samaræ sito, ab emarginaturæ fundo longius distante.

Ulmus montana, *Wither. Arrang.* ii. 275. *Smith, Eng. Bot. tab.* 1887; very good figure as to habit and leaves, but the fruits are smaller than in the usual state. *Gaudin, Fl. Helv.* ii. 263; the synonyms of *Fl. Danica* and *Schkuhr* do not belong to this plant. *Mutel. Fl. Franc.* iii. 174. *Lindl. Syn.* 227.

— *campestris*, *L. herb.!* but not likely of the *Flora Suecica*, since the species does not seem to be found in Sweden. *Willd. Arb.* 391 et *Sp.* ii. 1324; with the exclusion of almost all synonyms. *Ait. Hort. Kew. ed. 2*, ii. 107;

with the exclusion of the synonym of Swensk. Bot. *Benth. Cat. Pl. Lang. Villars, Dauph. ex Mutel.*

Ulmus campestris, α . *Koch, Syn. ed. 2. 734, pro parte.*

— *campestris*, α . *vulgaris*, *Spach in Ann. des Sci. Nat. 2ème sér. xv. 351 et in Suites à Buffon.*; figure of the fruit. *Nees, jun. Icon. Fl. Germ. ii. tab. 34*; as to the figure of the fruit.

— *folio latissimo scabro*, *Good. in Gerard Eem. 1841, ex Ray, Hist. Pl. ii. 1426.*

Witch-elm, in many parts of England.

Chichester elm of English gardens according to Dr. Lindley.

Although the list of synonyms I have given is already too long, I might add to them some hundreds more, but this would be a task as useless as ungrateful. It is fortunate that botanists begin generally to prize facts much above quotations taken at random out of enigmatical books, and which, far from illustrating truth, swell every day the dark abyss of botanical errors. In all cases let it be remembered that in Nature all is perfection; in human works greatness itself is but a degree of weakness, and, instead of joining with those who deny the existence of species because they are not able to see their limits, let us rather apply ourselves to close investigation, and we shall perhaps, to use an expression of Mr. Watson, learn to make a difference between *book-species*, which are liable to changes, and real species, whose variations are bounded by immutable limits.

HAB.—Perhaps not rare through various parts of Europe and in Asia Minor, but almost everywhere confounded with the preceding, and for that reason the localities are not to be given in most cases on the authority of others.

Scotland; very common there, and perhaps the only species indigenous, according to Sir W. Hooker; near Edinburgh and Loch Leven Island, near Kinross, *Herb. Hook.* England; in many places, but not so common as the preceding: Westmoreland, near Kendal, *Dr. Stokes ex Wither.*; Lancaster, near Warrington, *Wilson in Herb. Hook. No. 1 et 2*; Monmouth, near Wind-cliff, *Lindl. Herb.*; Cambridgeshire, near Streatham, *Leman, Herb.* Germany; *Ehrh. Exsic. No. 62, in Herb. Smith.* Switzerland; rare there in the woods, but commonly cultivated, according to Gaudin: Valais, *ubique inter Octodorum et Sideram, Gaud. Fl. Helv.* France; Pyrénées, central. et orient., *Benth. Cat. Pl. Langued.*; Dauphiné,

Mutel. Fl. Franç. Hungary; *T. Lang*, in *Herb. Lindl.* Asia Minor; woody region, *Aucher*, No. 5321, in *Herb. Hook.*

The above being only an extract from a more general memoir on the tribe of *Ulmaceæ*, which will shortly be published, time would not allow me to make further investigations on these two species of *Ulmus*. My only desire was to give a hint to those whose more special object is the study of European Botany. No society, therefore, could better forward my wish than that which began under your auspices, and whose end is to illustrate, by the best of all means, well-preserved specimens, the general Flora of Europe.

J. E. PLANCHON.

January, 1848.

Explanations of some Specimens for distribution by the Botanical Society of London in 1848. By HEWETT C. WATSON, Esq.

AGAIN, as in past years, I beg the Editor's permission to convey through the pages of the 'Phytologist' such needful explanations concerning certain of the specimens, now in course of distribution from the Botanical Society of London, as cannot be given to the recipients thereof by means of their labels only. In doing this, I may again, as in last year, congratulate the members on the improving character of the Society's distributions. No past season has ever brought so good a collection of specimens as that which is now in hand. They are generally complete examples of their species, have been more carefully dried, and include a larger proportion of those local plants which are likely to be much applied for; and, further, they have been more correctly and more neatly labelled by their contributors, than were the specimens of any preceding year.

In giving this favourable character to the aggregate collection, however, I write of it as it remains after the destruction of several thousands of specimens either supernumerary or unsuitable, or else labelled at variance with the "Regulations" of April, 1846, a copy of which had been placed in the hands of each member, and the better observance of which might reasonably have been expected. The necessity for destroying so many specimens is greatly to be regretted, when we call to mind the time and personal trouble which must have been bestowed on the collecting, drying, and labelling of them, with a result so utterly useless to everybody.

The destruction of some supernumerary specimens will hardly be

avoided, as this could only be prevented by such an amount of forethought and of botanical knowledge as cannot be looked for among the members in general. The Society sends out lists of the species which are likely to be wanted, or of which no specimens remain on hand. Some of these may be species of rather frequent occurrence, and of which very few specimens would suffice to meet the applications of the few members who would apply for them. But this circumstance of their frequent occurrence places them within the easy reach of several contributors, who therefore dry and send them to the Society in large numbers, and the aggregate amount includes probably ten times the number which will be applied for during several years. As an example of this, I may cite the *Gentiana campestris*, which was marked as a desideratum because there were no specimens of it in hand, and three or four young southern botanists had applied for it. In the 'London Catalogue' this species is followed by "16," in the scale of rarity, which extends from 1 to 20; the latter indicating the highest degree of frequency, to which 16 makes a tolerably near approach. Nevertheless, one contributor sent more than two hundred specimens, and as several others also sent about fifty each, the aggregate result exceeded five hundred specimens of a species, which is so little rare that not twenty of them may be applied for in the next three or six years. If the Society were to keep this large number of specimens, they would not only occupy so much space uselessly, but they would serve as an undisturbed breeding-place for those insect pests which become so troublesome among large collections of recently dried plants, and which rapidly spread after a first generation has come to maturity undisturbed. Now, if contributors would only make use of the data for judgment, placed before their eyes in the Society's 'Catalogue of British Plants,' and dry and send few specimens of those species which are marked by high Nos., they might spare this waste of their own time and trouble, and turn their efforts to a more useful end.

Another circumstance which leads to the destruction of many specimens is found in the condition of the specimens themselves. Comparatively few now require to be destroyed on account of that former carelessness in the drying which produced wrinkled up or badly coloured specimens; but great numbers are unavoidably destroyed on account of being too long for the Society's paper in which the duplicates are kept for distribution; and a still greater number suffer the like fate on account of being only fragments, where full specimens might have been easily sent instead. The former defect is the result

of sheer inattention to the "Regulations," which expressly direct that specimens exceeding fifteen inches in length are to be folded or bent within that compass while fresh. The latter defect is more frequently to be attributed to botanical inexperience; for young botanists often seem totally unaware of the importance of full-length specimens. They send the flowering tops of plants, culms of grasses without leaves, the catkins of willows without the foliage, orchises without roots, or fragments of some sort, such as often prove quite insufficient to distinguish one species from another nearly allied species.

In addition, there is so much of inconvenience and extra trouble caused by sending the specimens labelled contrary to the "Regulations," that all so sent are now destroyed at once, unless they chance to be examples of some very local species which the Society cannot well afford to throw away at the time. In this case the specimens may be retained and distributed; the negligent contributor possibly receiving a less ample return for them, through getting a lower chance for rarities or novelties received in scanty numbers. I will give one example in illustration of the loss of time caused by an apparently slight neglect of the Society's "Regulations." The duplicates are of course kept in the same arrangement as that in which their names are placed in the 'London Catalogue of British Plants,' which is the key to the Society's distributions. As fresh parcels accumulate on hand, the specimens are taken out and reduced into the same arrangement, preparatory to the placing of them in the general store. Under the most favourable circumstances, it occupies much time to sort and arrange the thousands upon thousands of specimens annually received from contributors. The process is done partly by the generic and specific names, partly by their Nos.; and it thus becomes a point of much importance that the names and Nos. should instantly catch the eye, as sheet after sheet is raised in succession, and brings into view the specimens on the sheet underneath. But, where the names and Nos. are obscured or concealed by the specimens, an interruption occurs in the process of sorting and arranging the sheets of specimens, by the necessity of stopping in order to raise the specimens from the paper, and examine the labels behind or beneath them. Experience alone can give any clear conception of the enormous waste of time that is caused by this one apparently trivial defect in the position of the labels. Equally troublesome is the omission of the Nos. altogether; for in that case the process of sorting is arrested until a copy of the 'London Catalogue' may be got at, the proper No. ascertained, and then probably written on each of the defective labels. Now, as it is quite

impossible for any contributor to misunderstand the direction about placing on his labels the corresponding No. of the species from the Catalogue, the omission can be ascribed only to a negligent (not to say, a selfish) disregard of the trouble and loss of time thereby caused to other parties, who give their unpaid services to the Society, and thus indirectly to the faulty contributor also. I trust that by thus openly calling the attention of contributors to the faults of their selections, their specimens, or their labels, such faults may be less and less frequently committed, each succeeding year. And I may repeat that, notwithstanding the destruction of so many defective specimens this winter, there still remains an ample supply, most of which are truly of very high quality. Many of these, indeed, have been so well selected, and so well dried, that they render me quite ashamed of things which I have dried for my own herbarium, or contributed to the Society, at no very distant date.

But I have already trespassed too far from the more immediate object of this communication, which is that of giving some explanations concerning any novelties, remarkable varieties, or doubtfully named plants, which the members may find in their parcels sent from the Society in 1848.

A new edition of the 'London Catalogue of British Plants,' having been published at the commencement of the present winter, almost everything and anything, hitherto ascertained to be British, can be applied for in the usual manner by members. Under the head of "Novelties," we class those plants which are not enumerated in the 'London Catalogue;' and such plants are distributed to the members, as far as specimens thereof can be obtained, whether asked for or not; since, at the time of sending up their lists of desiderata, several members may still be unaware of the British discovery of those plants. It was hardly to be expected that anything could come under the category of "Novelties," so immediately after publication of the new Catalogue; and yet there are three plants with apparent claims to be so designated and placed. In addition, there are some varieties which illustrate or throw light upon certain contested points in British botany. And there are also other specimens which cannot be labelled with sufficient certainty, and to which the attention of the recipients may be advantageously or warningly directed.

Udora verticillata (Aut.).—This peculiarly interesting discovery has been already made known to readers of the 'Phytologist' (see Phytol. ii. 1050); and some additional explanations were given in the Preface for the same volume, stitched in the No. for

January of the present year. Various names have been conferred upon the plant, which are now supposed, however, to include various plants, specifically distinct, although confused in books. The Rev. A. Bloxam, to whom the Society is indebted for specimens of this and many other valuable plants, has used the unpublished name of "*Anacharis Alsinastrum*" on his labels. Unfortunately, the specimens are destitute of flowers, and sufficient only for about a tenth of the members; for so large a supply is now requisite in order to send to each member, that it becomes difficult to equal the demand. By next winter, a more numerous supply may be hoped for; and even in their flowerless state the specimens can be readily distinguished from all other British plants. It will probably be found in various other counties besides Leicestershire; and to those botanists who may wish to search for it without having seen specimens, I would rudely describe it as an aquatic monocotyledon, with verticillate leaves, and general appearance between *Callitriche autumnalis* and *Potamogeton densus* or *perfoliatus*, although with flowers more resembling those of *Alisma*. But in general form the *Udora* resembles the European *Elatine Alsinastrum* more than any other plant known to me, if we leave the flowers out of consideration. I might compare *Udora* with the American *Mayaca*, were it not that such a comparison would be like an attempt to convey some idea of the little known by reference to that which is probably less known.

Salix ———? ("new species?").—Among various other species of this intricate genus, Mr. Ward, of Richmond, sends specimens of one which he thinks may prove to be a novelty. The label intimates that Mr. Borrer refers the specimens to *Salix aquatica*, an opinion with which Mr. Ward does not concur. They are located from the neighbourhood of Richmond, Yorkshire.

Myriophyllum pectinatum (De Cand.).—Mr. Notcutt, to whom the Society is indebted for a good supply of specimens, reported the discovery of this plant in the '*Phytologist*' for last year (see *Phytol.* ii. 1015). The specimens themselves may be received also as patterns of perfection; being good examples, well dried, and very neatly labelled; the absence of the No. being of course unavoidable on the label of a plant which was reported just too late to find place in the '*London Catalogue*.' According to the characters set forth in Koch's Synopsis, some of the specimens might as correctly be referred to his variety '*intermedium*,' as to his variety '*pectinatum*.' Doubtless Mr. Notcutt might find the connecting links between this latter variety and the more typical form of *M. verticillatum* in the same locality;

and I trust he will send a series for the herbarium of the Society. The first-sight similitude to *M. spicatum* is so strong, that other botanists may have passed by it as such.

Equisetum palustre (Linn.), vars. — In the ‘History of British Ferns’ Newman figures two varieties of this *Equisetum*, under the names of “polystachion” and “nudum;” the former being a monstrous or very highly developed state, in which the branches become fructiferous; the latter being a depauperised state, in which the branches are few or wanting, and the whole plant dwarfish and less erect than ordinary. As these are connected by intermediate links with the normal plant, and are rather variations or states, than distinct varieties, they were omitted from the second edition of the ‘London Catalogue,’ like many other things, for sake of brevity and compression. Dr. Mateer has sent some capital examples of the ‘polystachion’ form from Ireland; and Mr. Sansom has supplied some of the ‘nudum,’ from the neighbourhood of Crosby, on the Lancashire coast. Comparatively few of Mr. Sansom’s specimens are so denuded of branches, as are those represented in Newman’s work, page 49, which nearly depicts the mountain form or variety, called “alpinum” by Hooker and others. As their omission from the Catalogue will prevent applications for them, the specimens from Dr. Mateer and Mr. Sansom will be sent out like the novelties and other non-catalogued things.

Primula vulgaris var. *intermedia* (Lond. Cat.). — The connecting links between the cowslip and primrose may be grouped under three principal forms; as is done in the ‘London Catalogue.’ First, there are the caulescent primroses, which differ but little from the ordinary primrose (*P. vulgaris* or *acaulis*, of authors) except by having their umbels of flowers elevated on a common scape or peduncle, either with or without solitary flowers from the same root. Secondly, there are the intermediate forms, in which the physical characters of colour, shape, pubescence and inflorescence are those of primrose and cowslip combined, although, on the whole, the characters of the primrose predominating. Thirdly, there is a form, to be noticed under the next head, in which the characters are also intermediate, but nearer to those of the cowslip (*P. veris* or *officinalis*, of authors). Examples of the first of these three grouped varieties are not unfrequent; those of the second are much less so; those of the third, according to my experience, very rare. The second and third are often applied for unsuccessfully by members, owing to the difficulty of procuring the wild specimens in sufficient numbers. By way of temporary substitute, I

have dried garden-grown examples of them, which may at least suffice to show the plants intended by the names to those botanists who have imbibed a prejudice (for so I must venture to designate it) against herbarium specimens obtained from gardens. It will be apparent from my dried specimens of the "intermedia," that the colour and size of the flowers, the form of the calyx, and the pubescence, are truly intermediate; the inflorescence is perfectly umbellate and caulescent, as in the cowslip, but the pedicels are more upright at an early stage; the corollas less concave than in the cowslip; the leaves nearer the primrose in outline. At the time of sending my specimens to London, the colour is perfectly preserved, but it will change by damp, and slowly by time. I may add, although the flowers and leaves are garden-grown, that the original root was a genuinely wild one. It is the plant whose seeds produced the heterogeneous assemblage of cowslips, primroses, &c., recorded in the 'Phytologist,' ii. 217 and 852.

Primula veris var. *major* (Lond. Cat.).—The explanations given with the preceding, apply in part to this plant. It is highly uncertain whether it should be placed as a variety of cowslip or of primrose. By its short and close pubescence, its umbellate and caulescent inflorescence, its short and broad calycine teeth, it is a cowslip; but in its paler-coloured flowers, less concave and larger, it diverges towards the primrose. The leaves are rather more like those of the primrose, particularly in the specimens distributed, which are accordingly labelled "subvariety, with leaves like the primrose." The plant which produced these specimens, came up from some self-sown seeds by the side of a wild plant of *P. veris* var. *major*, which had been transplanted into my garden, but which had leaves less like those of the wild primrose than are the leaves of its offspring.

Experimental Primulæ.—In connexion with the preceding, I may also mention that I have dried many examples of the mixed assemblage of varieties produced from the seeds of '*Primula vulgaris* var. *intermedia*,' as recorded in the 'Phytologist,' ii. 217. These are made up into twenty packets, each containing a few specimens, not sufficient to exhibit all the gradual steps of transition, but sufficient to show that there is a transition from genuine primroses to genuine cowslips. Even those botanists who refuse faith in the carefulness or exactness of the experiments on record, may see with their own eyes that the intermediate links do exist. Indeed, they may be raised by anybody, may be seen in many gardens, or may be found wild by diligent search. Nevertheless, while I see no escape from the necessity of doing so, I am still somewhat reluctant to place cowslip and primrose as a single

species. The fact, once fairly admitted, of such extensive variation of a single species, must throw doubt upon thousands of supposed species as they now stand recorded and described in books.

Veronica officinalis (Linn.) var.—These specimens are distributed in order to show a variation from the ordinary form of the capsule, which is truncate or rounded at the summit, instead of being deeply notched. In this state the plant becomes the link of connexion between the ordinary *V. officinalis* and the very dwarf variety known as *V. hirsuta*, of Hopkirk. The specimens were collected on dry and sandy ground, on St. George's Hill, near Weybridge, Surrey. Some of them run pretty near the ordinary obcordate capsule of *V. officinalis*, while others have the fruit completely obovate and entire. I have occasionally seen the latter form of capsule on quite luxuriant plants, though it is more usually found in those of stunted growth, and approximating more towards *V. hirsuta*.

Aspidium angulare (Sm.).—Mr. Thomas Moore sends a series of examples, numbered 1 to 7, from the neighbourhood of Guildford. I do not know why they are thus distinguished, but have placed them for distribution in sets, of which there are eight or ten. Some other varieties, such as Dr. Mateer's *Plantago maritima*, with very long bracts, &c., &c., will sufficiently explain themselves, and need not detain us. I have still some few things to mention which are more or less doubtful.

Hieracium maculatum (Sm.).—Mr. Bladon sends excellent specimens of a plant labelled under this name from Pont-y-Pool, Monmouthshire. They are doubtless examples of the plant which that gentleman mentioned in the 'Phytologist' lately (see Phytol. ii. 927); and they have, as he stated, the radical leaves shrivelled or lost. Such, however, is hardly the normal character of the species to which they belong, namely, the *H. vulgare* of Fries. On walls, dry hedgebanks, and such-like situations, the radical leaves fade early; but in the damper meadows and woods of the Highlands, and in the ordinary soil of the gardens in Surrey, the radical leaves are persistent through the summer. This difference may be readily seen in numerous other plants; for example, the common cereals, in dry and poor ground, or in rich and damp soils. As various species of *Hieracium* run into "maculatum" varieties, the name has not been kept in the second edition of the 'London Catalogue.' For example, *Hieracium sylvaticum maculatum* is *H. vulgare* of Fries, in part, and *Hieracium murorum maculatum* is *H. hypochæroides* of Gibson; *Hieracium Lawsoni maculatum* has not acquired any other name on account of

its stained leaf, as far as I know, but is not uncommon in the localities for the unstained plant, or among garden seedlings from it. There is also a "maculatum" variety of *H. nigrescens*, &c., &c.

"*Hieracium denticulatum*" and "*Hieracium subaudum*."—The former of these plants was sent some years ago by Mr. Croall, from the "foot of Glen Dole, Clova, Forfarshire;" and the latter is sent by Dr. Mateer, from "Cove Hill, County of Antrim," Ireland. For my own part, I really feel uncertain by what names to call these *Hieracia*, but suspect they may belong to *H. inuloides*. I should be glad to learn what other botanists may think of them. The Clova specimens are very few.

"*Viola Curtisii*."—Mr. Sansom has sent specimens of a *Viola* from the sand-hills of the Cheshire coast, near New Brighton. It is the dubious form mentioned in my 'Cybele Britannica,' page 183; and still, even with the very good specimens from Mr. Sansom before me, I feel quite unprepared to say whether it should be labelled by the 'London Catalogue,' as *Viola tricolor intermedia* (136,c.) or as *Viola lutea Curtisii* (137,c.). The stipules are more lyrate than palmately pinnatifid, with the terminal lobe usually entire, occasionally crenate; thus combining characters which are supposed to distinguish *lutea* and *tricolor*.

"*Atriplex erecta*?"—Sent by the Rev. A. Bloxam, from the neighbourhood of Twycross, Leicestershire, thus interrogatively labelled. I think it most probably is the plant intended under that name by Hudson and Smith. It occurs abundantly in Surrey, but I have myself not collected it for distribution, through feeling uncertain how it should be labelled. Mr. Bloxam's specimens have been lying by for some years, and are now distributed rather to ask than to give information. What is the species?

"416,c. *Sedum reflexum* (Linn.)."—Under this name Mrs. Russell sends specimens collected on "Tremadoc Rocks, Carnarvonshire," by Miss Holland. Notwithstanding the name of "*reflexum*," it would seem from the addition of the letter "c" to the number of that species, that Mrs. Russell considers the specimens to belong to *S. rupestre*. By what name should they be called?

"*Tilia parvifolia* (Ehrh.)."—Sent by Mr. Roby, from Little Malvern. The leaves are larger and less angular than I have usually seen those of *T. parvifolia*; and the specimens being in the flowering stage, the character of the fruit cannot be ascertained from them. They are distributed as "doubtfuls;" but not in response to applica-

tions for *T. parvifolia* through the ordinary desiderata lists. No certain examples of *T. parvifolia* are in hand at this time for distribution.

“*Salix Hoffmanniana*?”—Mr. Notcutt sends specimens interrogatively labelled as this reputed species. Being only (female) catkins, without examples of the leaves, they will probably be of little use or assistance to any botanists; though, having been sent, the Society will distribute them with the other “doubtfuls.”

In addition to the preceding, which are specimens put apart to be sent to members, whether applied for or not, there are some few others on which I should wish to make a few remarks, although their names are enumerated in the ‘London Catalogue,’ and the specimens will consequently be sent only to those who apply for them in the usual manner.

Trifolium elegans (Savi).—I found this trefoil last summer in a field of *Trifolium pratense*, left for a second or autumnal crop, at Claygate, in the parish of Thames Ditton, Surrey. Some years ago I found it under similar circumstances, in a field between Moulsey Hurst and East Moulsey Church. It is doubtless imported with the seeds of the clover; but being of smaller size and trailing habit, any chance plants of it would be concealed by the clover during the growth of the first crop, and again when the second crop had well advanced. *Barkhausia setosa* occurred in the same field at Claygate. The specimens of neither plant are so good as might be wished; the first mowing of the clover crop having mutilated the plants from which they were taken. By some error of pen or press the name of *Trifolium elegans* is followed by “L.” instead of “Sav.”, in the ‘London Catalogue,’ No. 1468.

Viola lactea (Sm. Herb.).—The Society has to thank Mr. Sansom for sending several specimens of another *Viola* from the Cheshire coast, which is very little known, or if known, ill-understood by botanists. By Mr. Sansom the specimens are labelled “*Viola flavicornis*.” I have taken the liberty of writing also the name of “*V. lactea*, Sm. Herb.” across the end of the labels. I have no doubt that both these names mean the same plant; the name of *flavicornis* (Smith) appertaining to a more dwarf state, and that of *lactea* to the very same plant (whether species or variety) in a more luxuriant or branching form. I carried some of Mr. Sansom’s specimens to Smith’s herbarium, and found them correspond very closely indeed with the tolerably good series of *V. lactea*, labelled as such in his herbarium. But it is equally true that some two or three of the most stunted among Mr. Sansom’s specimens were undistinguishable from the ill-dried specimen of *V. flavicornis* in the same herbarium. Moreover, let any

unprejudiced botanical eye compare Smith's own specimen of *V. flavicornis* with the two smallest among his specimens of *V. lactea*, and that eye can scarcely fail to pronounce them identical. Mr. Forster is correct in referring the "Surrey violet" to *V. lactea* (see *Phytol.* ii. 964); and I am equally so in referring it to Smith's *V. flavicornis* (see *Phytol.* ii. 1021). Smith has described the same thing twice over, that is, under two names. In Babington's Manual it stands under three names; first, as a mere synonym of his "pusilla" variety of *V. canina*; secondly, under the name of "*Ruppia*;" thirdly, as a species distinct from *V. canina*, under Smith's name of "*V. lactea*." I think *V. lactea* (including Smith's *flavicornis*) will prove to be a species distinct from *V. canina* of Linneus.

Ænanthe silaifolia (Bieb.?).—Plenty of excellent examples of this species have been sent by different members; though few of them are sufficiently advanced to show the form of the mature fruit. Some few of Mr. Salmon's specimens have fruit nearly full grown, and proving beyond all cavil that it has the callous base, and is nearly cylindrical in form, widely different from the figure given by Mr. Lees, and from the descriptions given by Ball. It is obvious from the Manual, that Mr. Babington still misunderstood this species even in 1847.

Hieracium heterophyllum (Bladon).—There are no duplicates of this for distribution; but from specimens kindly sent for my own herbarium and that of the Botanical Society, I think I may safely say that it is the *H. boreale* of Fries.

Filago gallica (Linn.).—This is the first time that British specimens of this very local, and perhaps not truly indigenous, species have been sent to the Society. They were collected by Mr. Varenne, in corn-fields, near Brerchurch, Essex, and doubtless will be desiderata with most of the members.

Carex montana, *Sisyrinchium anceps*, *Vaccinium macrocarpum*, *Luzula nivea*, and other rarities, native and introduced, have been liberally supplied by their respective discoverers. Of *Leersia oryzoides*, *Malva verticillata*, &c., the stock is scanty, and we must hope for more another season. *Tragopogon porrifolius*, *Lobelia urens*, *Helianthemum Breweri* and *ledifolium*, *Galium Vaillantii*, &c., &c., will still be in request, and the supply of these is plentiful, this year.

HEWETT C. WATSON.

Thames Ditton, January 19, 1848.

Postscript.—Since the foregoing pages were written, a supply of “*Hieracium heterophyllum*” has been kindly sent to the Botanical Society by Mr. Bladon; so that members will now have the opportunity of judging for themselves whether it is or is not the *H. boreale* of Fries. The limited supply of *Udora verticillata* and *Leersia oryzoides* has likewise been increased by the addition of some good specimens from Mr. Borrer, who sends the *Udora* from the second (Hampshire) locality.

I may likewise mention that the plant entered under the name of “*Ranunculus innominatus*,” in the second edition of the ‘*London Catalogue*,’ is the species alluded to in the ‘*Phytologist*’ for last year (Phytol. ii. 854), and which is shown not to be *R. tripartitus* of Cosson and Germain’s *Atlas*, by the difference of the fruit, which better corresponds with that of *R. hederaceus*. Mr. Westcombe has gathered the same *Ranunculus* in Cornwall. HEWETT C. WATSON.

Thames Ditton, January 19, 1848.

Notice of the ‘Annals and Magazine of Natural History,’ for the year 1847. Vols. 19 and 20, or Nos. 123 to 136.

Two years ago it was strongly recommended by a friendly correspondent, that the ‘*Phytologist*’ should be rendered, “as nearly as possible, a complete record and index of all that is done or discovered in British Botany,” (see Phytol. ii. 382). And notwithstanding the clandestine attempts occasionally made by some few self-interested and selfish individuals, in order to prevent others from sending articles to this journal, or in the vain hope of restricting its circulation and influence, the ‘*Phytologist*’ has kept on a steady advance towards accomplishment of the object proposed; so that it has now reached a point very little short of being the complete record recommended. Still, it cannot be wholly so without giving an occasional glance at the contents of such other periodicals as profess to be *Journals of Botany* also. Our notices of the more important of these, namely, the ‘*London Journal of Botany*,’ have been brought to the end of 1847. But our customary report of the botanical contents of the *Annals*, the only other journal in which Botany is anywise a prominent feature, have fallen much in arrear; partly from its contents including little that could be deemed of special interest to British botanists; partly from other calls on time and attention. In the course of the year, indeed, there have been some good articles on Botany in the *Annals*; although these are chiefly translations from foreign publications, and

interesting to British botanists only in so far as they concern themselves with general Botany also. The subjoined enumeration of the articles from the two volumes for 1847 will show this to be the case.

Vol. 19, or Nos. 123 to 129. "A Supplement to 'A Synopsis of the British Rubi,'" by Charles C. Babington. "On the Development of the Lycopodiaceæ;" translated from Muller's paper in the 'Botanische Zeitung.' "Achillea tanacetifolia (*All.*); its Discovery in England by Mr. John Hardy." "A Note on the Chinese Indigo," by Fortune; copied from the 'Journal of the Horticultural Society.' "On a Second Form of Fructification in *Peysonnellia Squamaria*," by C. Montagne, in a letter to the Rev. M. J. Berkeley. "Comparison of the Periods of Flowering of certain Plants in the early Spring of 1846, in the Botanic Garden of Belfast and the Jardin des Plantes, at Paris," by William Thompson, Esq. "Notice of a new species of *Dawsonia*," by Dr. Greville. "Note on the Tea Plant of China;" copied from Fortune's China. Account of some "Monstrous Roses;" copied from a newspaper.

Vol. 20, or Nos. 130 to 136. "On Conjugation in the Diatomaceæ," by Mr. G. H. Thwaites. "Notice of Plants collected in Canada," by Dr. P. W. MacLagan. "List of Plants gathered in Iceland," by Mr. C. C. Babington. "On the Power of the Living Plant to restrain the Evaporation of the Cell-Sap;" translated from a paper by Mohl in the 'Botanische Zeitung.' "On the Relative Duration of the Power to Germinate in Seeds belonging to different Families;" translated from a paper by Alph. De Candolle, in the 'Annales des Sciences.' "On the Parasitical Nature of the Rhinanthaceæ;" translation of Decaisne's paper in the 'Comptes Rendus.' "Observations by L. C. Treviranus, on the Structure of the Fruit of Cruciferæ;" translated from the 'Botanische Zeitung.' "Description of two new Mosses from Jamaica," by William Wilson, Esq. "Diagnostic Characters of five new species of Cryptogamic Plants from Jamaica," by Dr. Thomas Taylor. "Description of some Grasses and Sedges from the East Coast of Demerara," by Sir Robert Schomburgk.

An article which describes plants not previously on record as natives of Britain should be the first to challenge the attention of those interested in British Botany. But we fear that the discovery of "new British Rubi" is so easily within the reach of any botanist who will carry home individual specimens to be described as such, that even novelty here may have only feeble attraction; unless it be for those half-dozen ardent and able botanists who have latterly devoted their attention to these proteiform pests of our hedgerows.

The occurrence of *Achillea tanacetifolia* near Matlock and Sheffield has been recorded in the 'Phytologist' (Phytol. ii. 674); and the paper of M. Decaisne has also been placed before our readers (Phytol. ii. 1025). None of the other scientific articles seem to call for any special notice here. The account of the "monstrous roses" may have an interest for botanists who look for the facts of morphology second or third-hand in the study; but the same or very similar monstrosities may be seen any season in our gardens.

The borrowed paper, intitled "Enemies to Science among the Nobles," refers to a matter of considerable interest to botanical collectors in the Highlands. We could wish the subject had fallen into better hands than those of that case-making vituperator of the Highland proprietors, who penned the article so little worthy of being reprinted in the Annals. We must certainly regret that the conversion of the wild wastes of the Grampians into deer-forests, to its other disadvantages should also add that of excluding botanists from some of their favourite haunts. But it is simply a question of law and right between the proprietors and the public; for the pursuit of Botany can give no peculiar right of way over the grounds of another man, either to professor or to student, over and above the rights which may appertain to them as individual members of the general public. It is mere calumny to designate our "Nobles" as "Enemies to Science," simply because they strive to preserve their own deer-forests undisturbed by the presence of strangers, and do not make a special exception in favour of students who go thither to collect plants. If such an exception were made in favour of those parties whose object is the pursuit of science, in any of its branches, the concession might be called liberal and graceful; but the withholding of it is at worst no proof of aught beyond simple indifference thereto. The author of the article contrasts the exclusions of the Highland proprietors against Prince Albert's two visits, in 1846 and 1847, to the meetings of the British Association: he would have done better to ascertain first whether the Prince's game preserves are open to the feet of botanists. The writer of this page is writing almost within sight of some of those preserves, and has found them quite as much closed as the Grampians are asserted to be; and very inconveniently to himself, by obliging him to make wide circuits for avoidance of them in his herborizing excursions. But who could be so stultified or so false as to call Prince Albert an "Enemy to Science" because he cares more for pheasants than for the amusement of botanists?

C.

On the supposed Identity of the Muscus corniculatus of Gerarde with Asplenium septentrionale of Authors. By HENRY BULL, Esq.

THE *Muscus corniculatus* of Gerarde (Ger. Em. 1561) is commonly given as a synonym for *Asplenium septentrionale* of authors. Should it be so? Gerarde says of his plant, "it riseth forth of the ground," whereas the habitat of *Asplenium septentrionale* is described by Sir J. E. Smith "*In fissuris rupium*;"* by Mr. Babington "Dry clefts of rocks;"† and by Newman as "*only* in the fissures of rocks and the interstices of stone walls;"‡ and the plant is moreover further characterized by its growth—"in a horizontal position from a perpendicular surface."§

In colour the fronds of *Asplenium septentrionale* are described as "*atro-virentes*,"|| "dark green,"¶ "dark dull green,"** "green throughout the winter,"†† but "every part" of Gerarde's plant was "of an over-worne whitish colour." The figure in Ger. Em. 1561, is undoubtedly that of *Asplenium septentrionale*. Johnson, however, tells us, "our author formerly gave another *figure* and *description* of this plant by the name of *Holosteum petreum*, which I have omitted, thinking this the better." The description (Ger. Em. 1561) applies admirably to any of the *Cladoniæ*, to *Cladonia uncialis*, perhaps, more particularly, and this I cannot but think was the plant intended to be described. It is indeed "of an over-worne whitish colour," or as Sir W. Hooker describes it, "pale yellowish white,"‡‡ very unlike the "dark dull green" of *Asplenium septentrionale*. There is evidently some confusion as to the figures, and it is not improbable that the one which was rejected by Johnson represented the true *Muscus corniculatus*, corresponding with *Cladonia* ———? whilst that retained is the figure of *Holosteum petreum*, corresponding with *Asplenium septentrionale*. The description having been omitted by Johnson, as he himself admits.

The name *Holosteum petreum* would indicate a rupestral plant, and the *Cladonia* might well be named the "little-horned moss" by Gerarde, who describes the allied lichens as "chalice moss," "cup moss," &c.

Gerarde's description of *Muscus corniculatus* has been already

* Flor. Brit. iii. 1122.

† Manual, 389.

‡ Brit. Ferns, 269.

§ Id. 273. || Flor. Brit.

¶ Eng. Bot.

** Eng. Flor.

†† Brit. Ferns.

‡‡ Eng. Flor. v. 235.

quoted in the 'British Ferns,' I may, however, perhaps be allowed to quote it in this place.

"There is found upon the tops of our most barren mountaines, but especially where sea-cales are accustomed to be digged, stone to make iron of, and also where ore is gotten for tinne and lead, a certaine small plant: it riseth forth of the ground with many bare and naked branches, dividing themselves at the top into sundry knags like the forked hornes of a Deere, every part whereof is of an overworne whitish colour." From this it will be seen that no mention whatever is made of the capsules, which are said to cover the entire lower surfaces of the fronds of *Asplenium septentrionale* when mature, and which may well be thought too conspicuous to have escaped the notice of the generally very accurate Gerarde.

It may be further remarked that the great rarity of *Asplenium septentrionale* renders it extremely unlikely that so good a plant should escape detection in the many unlikely habitats that have been given for it by Gerarde, supposing it to be his *Muscus corniculatus*.

I enclose specimens of *Cladonia uncialis* from Cove Common, Hants.

HENRY BULL.

Portsmouth, January 20, 1848.

On certain Forms or Species of Fruticose Brambles experimentally proved to be permanent. By EDWIN LEES, Esq., F.L.S.

MR. NEWMAN states in his preface to the last volume of the 'Phytologist' that "Rubus still continues to be the most fashionable genus of British plants;" I am glad that it is so, as attention will thus be brought to bear upon the subject, which it hardly could be while ridicule was captiously or by insinuation heaped upon any botanist who proposed to designate particular and supposed permanent forms of Rubi as *species*. As I have been long unfashionable in the regard I have paid for many years to the fruticose Rubi, I may as well just dash on the current while the tide flows, and state my own experience from the examination of some thousands of plants in the living state. This I propose to do on an early opportunity; but as the subject has been mooted as to raising Rubi from seed, it is but fair to a humble, but honest and keen-observing man, to say that this has been already done in many instances. Let me then state the matter as it came to my knowledge.

Last summer, being with my friend Mr. W. Matthews, jun., spending a few days at Park Hall, near Kidderminster, a botanical excursion was proposed into Wyre Forest, and Mr. Matthews suggested that an old servant of Mr. Fryer's, of Bewdley, who was well acquainted with the Forest, should accompany us as a guide. This individual, whose name is Jordan, a most honest and trust-worthy person, has a good deal of time on his hands, and besides waiting upon Mr. Fryer, manages his gardening affairs. Mr. Fryer having kindly dispensed with Jordan's services, the old man came with us to look again at his favourite forest with great glee. But first of all he requested us to go to his garden, as he particularly wished me to see some brambles which he had raised from seed gathered in the forest, that he had carefully noted the bushes from which he took the fruit, and that in every instance the offspring precisely resembled the parent plant. I was delighted to hear this, more particularly as Jordan had not been trusting to any nomenclature in the matter, and might have thus mistaken a *name*; but as he truly said he knew all the brambles of the forest by *sight*, but their Latin designations were quite unknown to him. How long he had had brambles under cultivation I am unable to say, but he said that he always found that three years elapsed after planting the seed before the shrub produced flowers.

I understood from Mr. Jordan that after satisfying himself that the seeds produced plants quite similar to their parents, he had been in the habit of grubbing them up, as he was obliged to economize room, so that all he had experimented upon were not then under cultivation. Those that I saw and examined in the garden were as under:—

R. sylvaticus, W. & N.—Very characteristic, and precisely resembling the plants in the forest, as well as specimens I have gathered in Birchin Grove, Worcester. The very large leaves, green on both sides, of this form, and the stem trailing far upon the ground, render it very conspicuous in forest tracts. These leaves assume a brilliant red colour, and fade away long before the enduring, almost evergreen foliage of *R. fruticosus*. Totally distinct from any of the glandular brambles.

R. sublustris, Lees, (in Steele's 'Handbook of Field Botany').—This is the *R. corylifolius* of Babington, but being confounded by Sir J. E. Smith with *R. dumetorum*, W. & N., the term *corylifolius*, as deceptive, ought not in my opinion to remain. Weihe and Nees have it not in *Rub. Germ.*, referring Smith's plant to their *dumetorum*. The very smooth stem, however, only distantly armed, and the white pubescence of the leaves beneath, well distinguish it. The

flowers are often very large and specious. The garden seedling precisely resembled wild hedge plants. I should remark that I have a specimen of this in my herbarium named by Dr. Lindley as “perhaps *R. affinis*, *W. & N.*”, and it is γ . *affinis* of Leighton’s ‘Flora of Shropshire.’ All these *names* are truly puzzling enough to a student, and here the difficulty lies, but the plant remains the same, distinct enough to be known, if botanists would pore less over mouldy specimens, and look more to the growing plants in copse or hedge.

R. hystrix, *W. & N.*—Of all the glandulose Rubi, and their name is legion, this may be most certainly distinguished, as it is impossible to mistake its deeply jagged elliptical leaflets. It is also a very common plant. Nevertheless, Mr. Babington calls it *radula*, but I cannot but prefer the former name, as our plant agrees so closely with the plate of *hystrix* in *Rub. Germ.* Mr. Jordan stated his garden seedling to agree with its wild parent, and the only difference appeared to me to be the somewhat smaller panicle.

R. fruticosus, *Auct.*—This common bramble was the only one that exhibited any symptoms of variation. It was three years old, yet exhibited no signs of flowering, though it had grown up pretty high. Being in the shade, the leaves were green on both sides, so that the first aspect of the plant was different to the usual appearance of *fruticosus*. I have, however, seen wild specimens in dark spots very similar, and indeed, in shady places, *fruticosus*, as I have noted, will send forth barren shoots two years successively, without flowering.

As Mr. Jordan has further experiments in hand, I only now report progress as data for subsequent reasoning, and as proving that all is not barren of result even among brambles—“*ferat et rubus asper amomum.*”*

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
February 2, 1848.

Still “Further Remarks” on Viola flavicornis, in reference to those of Mr. Forster. By HEWETT C. WATSON, Esq.

MR. FORSTER has done me the honour to notice (*Phytol.* iii. 31) a question which I found occasion to address to him, while defending my own views about Smith’s *Viola flavicornis*, &c., which that gentleman had opposed in the ‘*Phytologist*.’ If the reply had been

* *Virgil*, *Ec.* iii.

simply an answer to my real question, further discussion of the subject might have been better dropped between us; since any competent botanist might then have been considered in a position to estimate the sufficiency of the reply. Unfortunately, the intended answer shoots far wide of the question, through the mystification of including two different things under one name only. For this reason, I feel called to self-defence still.

I had stated certain characters (Phytol. ii. 1029) whereby *Forster's* *Viola flavicornis* differs from *Smith's* *Viola flavicornis*; and I then asked whether characters could be shown, whereby the disputed "Surrey violet" differs from *Smith's* *V. flavicornis* "to an equal degree?—or to any describable degree?" Mr. Forster replies to the latter moiety of the question, by saying that his two specimens of the "Surrey violet" differ from a specimen of the "dwarf violet" (*Forster's* *flavicornis*) in the form of their leaves. Thus, while I am asking for a distinction between A and B, Mr. Forster replies by stating a difference between A and C. No doubt this evading answer was made with perfect sincerity of intention, but it cannot be commended for its logic.

In contrasting A and C, however, Mr. Forster uses the words "as described by Smith," which are sufficient to intimate that B (*Smith's* *Viola flavicornis*) was not wholly absent from his ideas at the time, although confused with and subordinate to C (*Forster's* *Viola flavicornis*). I may presume, he intended to say that the difference which he finds between A and C, does also exist between A and B. On this presumption, I am to infer that Mr. Forster considers me wrong in referring the "Surrey violet" to *Smith's* *flavicornis*, because the leaves of the latter are said to be *cordate, obtuse*; whereas those of two specimens of the former are "ovate-lanceolate, not heart-shaped, though it is true that on one of them a leaf or two show a very slight tendency at the base to become so." (Mr. Forster's words).

Now, the leaves of the violets allied to *V. canina* are well known to be very polymorphous; and therefore I should scarcely have anticipated that so experienced a botanist as Mr. Forster would adduce this single character of two individual *specimens*, as a "describable degree" of difference between two alleged *species*, without previous inquiry about the constancy of the character. The two specimens sent to Mr. Forster, were such as I had loose by me at the time, and could I have foreseen the use which he would make of them, I should have warned him that two specimens could not show all the variations of form to be found in the leaves of the species to which they

belong. Indeed, I had expressly stated in my paper which called forth Mr. Forster's reply, that there is "great variety of form and size, both in leaves and flowers." Some time ago, other specimens of the "Surrey violet" were sent to Mr. C. C. Babington, who referred them to his "*Ruppii*," described with "cordate-ovate leaves." Smith says the leaves are "heart-shaped, obtuse." The descriptions of the three botanists run thus:—

SMITH;—cordate, obtuse.

BABINGTON;—cordate-ovate, slightly narrowed into petiole.

FORSTER (1);—ovate-lanceolate, subcordate at base.

Do. (2);—ovate-lanceolate.

Each of these is correct, but partially so. What are the facts from nature? My herbarium includes some thirty or forty examples collected in this neighbourhood; and I find their leaves ranging from perfectly cordate to ovate-lanceolate. Mr. Babington's term of "cordate-ovate" is a good average, and might be applied to the larger portion; but on several dwarfed specimens (corresponding with the example of *V. flavicornis* in Smith's herbarium) the leaves are truly cordate and obtuse. In conclusion, I beg to refer Mr. Forster to a paragraph on *Viola lactea* in the last 'Phytologist,' namely, vol. iii. page 47.

HEWETT C. WATSON.

Thames Ditton, February 3, 1848.

Occurrence of Carex punctata on the Cornish Coast.

By THOMAS WESTCOMBE, Esq.

AMONGST the specimens which I collected in Cornwall last summer, I find that I have one of *Carex punctata*, *Gaudin*. Having been informed that the Cornish coast is a new habitat for it, and it being also a species which has but few recorded localities in this country, its occurrence there may be worthy of notice in the 'Phytologist.' The locality, as nearly as I can describe it, is by the side of the footpath on the face of the cliff on the coast south of St. Austel, and about three quarters of a mile westward of Charlestown.

T. WESTCOMBE.

Worcester, 2nd mo., 8, 1848.

Cyperus fuscus erroneously supposed to be an Annual.

By THOMAS MOORE, Esq.

I FIND it stated in Mr. Babington's Manual and Mr. Steele's Handbook, that *Cyperus fuscus* is an annual. This I believe to be an error; and I have come to this conclusion from the following direct and recent evidence.

In the autumn of 1847, I visited the Shalford locality of the *Cyperus*, and found it abundant enough, just coming into flower. The plant had what we gardeners are in the habit of considering as entirely the *appearance* of an annual. Some specimens were transplanted, and grew, and flowered finely, perfecting plenty of seed, and ultimately dying on the approach of winter. The experiment of raising plants from seed, and noting their duration, would, of course, be conclusive, but this I have not yet made; nevertheless, there seems no ground to believe that the *Cyperus fuscus* is only of annual duration.

THOMAS MOORE.

Camden Town, February 7, 1848.

 BOTANICAL SOCIETY OF EDINBURGH.

Thursday, November 11, 1847.—Dr. R. K. Greville, President, in the chair.

Numerous donations to the herbarium were announced since last meeting; particularly, large collections of North American and West India plants from Dr. Gavin Watson, Philadelphia, and Dr. Gilbert M'Nab, Jamaica; Iceland plants from Chas. C. Babington, Esq.; Gibraltar plants from Dr. Kelaart; English and Scottish from Dr. Dickson, Jersey, Professor Balfour, Dr. Robertson, and James Mitchell, Esq.; also a named collection of North American Grasses and Cyperaceæ, from Wm. Gourlie, jun., Esq. The thanks of the society were voted to the respective donors.

The following communications were read:—

1. Remarks on the Physical Geography of Styria, with particular reference to its Flora, by J. E. Oblach, Gratz. In this paper, the author gives an account of the meetings of the German naturalists, and shows their important bearing on the advancement of science. He then proceeds to describe the physical features of Styria. After

noticing the general aspect of the province, its geological formation, and the nature of its climate, as regards temperature and moisture, he alludes to its vegetation, as divided into a northern and southern Flora.

In the forests of Upper Styria, he states that the pine tribe prevails;—the species being *Pinus sylvestris* and *Picea*, *Abies communis*, *Larix europæa*, and in the higher regions *Pinus Cembra* and *Pumilio*; *Taxus baccata* occurs generally in scattered patches, but forms whole forests upon the Ketbeuze, near St. Lambrecht. Among the other trees of the district mentioned are *Fagus sylvatica*, *Betula alba*, *Acer Pseudo-platanus*, *Populus tremula*, *alba* and *nigra*, *Sorbus Aucuparia*, *Fraxinus excelsior*, *Alnus glutinosa*, &c. He then enumerates some of the Alpine species, and concludes by stating that the harvest in this part of the province is in September and October, and is not unfrequently gathered from under the snow; buckwheat forming the first crop. In Lower Styria the vegetation is of a less Alpine nature, but is very rich. The vine and maize are universally cultivated, and buckwheat forms the second crop.

2. Dr. Greville exhibited beautifully prepared specimens of (nearly) all the British species and varieties of the genus *Sphagnum*, and gave a verbal notice regarding them.

3. A specimen of *Phalaris utriculata*, gathered by J. Hussey, Esq., in the corner of a corn-field near Swanage, Salisbury, was exhibited. The specimen was sent by Dr. Hole, a non-resident member of the society.

4. Beautiful specimens of *Pimpinella magna*, from the banks of the Teith, Perthshire, were sent by Dr. Dewar, who discovered it. This plant occurs in many places in England and Ireland, but this is the only known Scottish locality. Sir J. E. Smith mentions a Scotch specimen as existing in Bruce's herbarium, but gives no particular habitat.

5. Dr. Balfour mentioned the discovery of *Carex leporina* near the summit of Cairn Toul, between three and four thousand feet above the level of the sea, by his party, on the 14th August last. This is the second known station for the plant in Britain.

6. Specimens of *Anacharis Alsinastrum*, *Bab. MSS.*, found near Market Harborough, Leicestershire, by Miss Kirby, were shown in a living state; and a dried specimen of this new British plant was presented to the Society's herbarium by Mr. Babington. A full description will be afterwards given.

7. Read a communication from W. Wilson, Esq., on *Pilotrichum*

funale and *Omalia lentula*, two new mosses from Jamaica, transmitted by Dr. G. M'Nab.

8. Descriptions of *Plageochila subbidentata* and *Parmelia ochroleuca*, two new lichens also sent by Dr. M'Nab from Jamaica: and of *Leskea angustifolia*, *Phragmicoma affixa*, and *Radula Grevilleana*, new species from Jamaica in Dr. Greville's herbarium, by Dr. Taylor, Dunkerron; specimens were exhibited to the meeting.

Mr. Absolon sent a large specimen of *Lolium temulentum* from fields near Forfar.

Thursday, December 9, 1847.—The Rev. Dr. Fleming, President, in the chair.

Donations to the herbarium were announced from Mr. O. W. Sonder, Hamburgh; Mr. Joh. Lange, Copenhagen; Dr. Jessen, Kiel; Mr. J. T. Syme, Edinburgh; and Mr. P. Gray, Dumfries.

The following communications were read:—

1. On *Anacharis Alsinastrum*, a new British Plant, by Charles C. Babington, Esq., with a Synopsis of the other Species of the Genus, by Dr. J. C. Planchon.

2. On the Reproduction of Cryptogamic Plants, by the late Wm. Stark Dougall, Esq., communicated by Dr. Balfour.

The first part only of this paper was read, viz., “On the Mode of Formation of Spores in Algæ and Characeæ.”

In the introductory remarks the author examines the opinions entertained by botanists as to the existence, in these plants, of bodies equivalent to the stamens and pistils of the higher orders of vegetables. The arguments in favour of their existence are, the presence in the same or different individuals of two kinds of cells, the union of which in some way appears to be necessary for the production of germinating spores. These cells sometimes exist in the same cavity, so that the functions cannot be always easily detected. At other times they are separate. In the latter case, the spores are occasionally produced by the actual conjugation of two individuals of the same species. The spores, when first discharged, frequently exhibit ciliary movements, like those seen in the ova of animals. And lastly, the cells representing anthers often contain Phytozoa, or moving bodies similar to the Spermatozoa of animals.

The reproduction of Algæ is then brought under consideration as observed in Diatomaceæ and Confervaceæ, with their cell-division, conjugation and development of endochrome; in the Fucaceæ and Ceramiaceæ, with their antheridia, spores and tetraspores; and in Characeæ with their globule and nucule.

In regard to the latter tribe, the following points are noticed as favouring the opinion that the globule may be compared to an anther and the nucule to the pistil. Their co-existence and close proximity—the opening of the valves of the globule to allow the escape of filaments and Phytozoa (similar to those of Fuci, which Thuret and Decaisne have shown to be connected with staminal functions)—the existence of an opening at the apex of the nucule allowing communication with the interior—the capability of germination in the contents of the nucule when mature—and the decadence of the globule prior to the ripening of the nucule.

The second and third parts of the paper on the reproduction of the other orders of cryptogamic plants were deferred till a future meeting.

Dr. Balfour read a communication from Mr. Charles Lawson, jun., relative to the cultivation of potatoes by cuttings of the herbaceous stems. Six cuttings were planted on 16th June, 1847, kept in a warm frame for six weeks, then planted out, and they produced twenty tubers of very considerable size, one of which was exhibited. The communication was accompanied by a report from Mr. Alexander M'Laren, gardener to the Dowager Marchioness of Queensbury at Coten House, in which he states that he potted green cuttings in February, 1847, three in a No. 4 pot, in a mixture of leaf-mould and light loam. He then plunged them into a bottom heat of 75°, taking care to shade them from the sun, and also to water them three times every day. On 23rd April he found tubers of the size of a walnut.

Mr. Brand read an extract from a letter from W. A. Stables, Esq., relative to the plantations recently made on Lord Cawdor's estate in Nairnshire. "The forester planted 230 imperial acres in nine days, fifty-seven women and boys being employed each day, and the average number of trees planted by each was 1566 a-day. Two-thirds of the plants were larch, and the remainder Scotch fir—in all, 3465 plants per acre. The plants were two-year-old seedlings, all raised in the gardens here. The cost of enclosing was £75 6s. 10d., and of planting £16 8s. 8d.—together, £92 5s. 6d., or about 7s. 7d. per acre of outlay."

The following gentlemen were added to the roll of ordinary members: James Mitchell, Esq., 21, Lothian Street; Charles Murchison, Esq., 9, Alva Street; Wyville Thomson, Esq., Musselburgh; Francis J. Ivory, Esq., 9, Ainslie Place; Henry P. Morse, Esq., 3, Duncan Street; Alexander Grant, Esq., 34, London Street; James Cunningham, Esq., W.S., 50, Queen Street; Henry Hewetson, Esq., 113, Princes Street; and Dr. C. Jessen, Kiel, Denmark, and Joh. Lange, Copenhagen, were elected foreign members.

Dr. R. W. Falconer, Tenby, was appointed local secretary for Pembrokeshire, and Mr. Lange, Copenhagen, for Denmark.

At this meeting the election of office-bearers for the ensuing year took place, when the following gentlemen were unanimously chosen: Rev. Dr. Fleming, President; Drs. Greville, Balfour, Christison, Neill, Vice-Presidents; Sir William Jardine, Dr. Seller, Dr. Lowe, Mr. W. M'Nab, Mr. C. Lawson, jun., Prof. Allen Thomson, Mr. J. Marshall, jun., Mr. R. Holden, Mr. William Ivory, Mr. W. Wright, Councillors; Mr. Brand, Treasurer; Professor Goodsir, Secretary; Dr. Douglas Maclagan, Foreign Secretary; Dr. Parnell, Curator of Museum, &c.; Mr. J. M'Nab, Artist; Mr. Evans, Assistant Secretary and Curator.

Thursday, January 13, 1848.—The Rev. Dr. Fleming, President, in the chair.

Donations to the library and museum were announced:—1st, books from the Leopoldine Academy; M. Alphonse DeCandolle; and Dr. M'Fadyen, Jamaica. 2d, specimens of rare English plants from Dr. Balfour; Scottish Alpine plants from Mr. C. Murchison; a large collection of plants from the Society Islands, from Dr. Archd. Sibbald, of H.M.S. Grampus, and Portuguese plants from Sir Walter C. Trevelyan. Among the latter were some marked as having been collected in the streets of Cadiz and Lisbon, viz., *Frankenia pulverulenta*, *Illecebrum echinatum*, and *Hippia stolonifera*;—these plants are remarkable for their habit of flourishing in the interstices of the paving stones of much frequented thoroughfares, but growing so close to the ground that they are but little injured by the feet of passengers. The collection also contained specimens of *Statice lusitanica* from Persoon's locality.

The following communications were read:—

1. On the Reproduction of Cryptogamic Plants, by the late William Stark Dougall, Esq., continued. Part second, mode of formation of spores in Fungi, lichens, Musci, and Hepaticæ. In this part of the paper the author first considered the reproductive organs in the various divisions of the natural order Fungi; and pointed out the analogy which they bear to Algæ in many respects. Thus in the lower members of the order the mode of reproduction may be compared to that observed in Confervaceæ, both as regards the development of spores and their movement. In other cases the formation of spores at the dilated ends of filaments or sterigmata, resembles in some degree what takes place in Vaucheria. He regarded the filamentous paraphyses

as being concerned in the fertilization of the contents of the asci and basidia.

He next noticed the natural order Lichenes, and considered the production of spores, whether naked or in asci, which are united in the form of apothecia; and of the round green bodies called gonidia or gongyli, which are either single or in groups. He stated that little was known in regard to the formation of the latter bodies, and that the subject of reproduction in lichens was still very obscure; although it might be said to resemble that of some Ascomycetous fungi.

The Ricciaceæ, Marchantiaceæ, and Jungermanniaceæ, were next brought under notice. In these orders, organs which appear to be equivalent to stamens and pistils were pointed out, as well as certain bodies which might be reckoned as buds or gemmæ. The presence of Phytozoa with cilia, and of spiral fibres or elaters, was also remarked.

The Equisetaceæ were looked upon as in many respects allied to the last-mentioned orders, especially in developing spores with spiral filaments.

The true mosses were then alluded to, and in them the author believed that re-productive organs have been demonstrated in the antheridia with their granular contents and Phytozoa, and the thecæ or sporangia with their spores. He detailed the various species in which Phytozoa had been detected by Thuret, Brongniart, Meyen, and Unger, pointed out the monœcious, diœcious, polygamous, and hermaphrodite arrangement of the organs, noticed the difference between spores and gemmæ, and concluded by stating the following arguments in favour of the sexual nature of the spore-formation in the whole muscal alliance:—1. The existence of antheridia and pistillidia, and the production of true spores by the latter. 2. The existence of Phytozoa in the antheridia. 3. The relation of antheridia and pistillidia to one another in point of periodicity, both as regards development and function. 4. Their relative arrangement, either together or separate, on the same or on different individuals. 5. The provisions by which the coming in contact of the contents of the antheridia with those of the pistillidia may be effected.

The paper was illustrated by a series of magnified drawings from Dr. Balfour's collection.

2. On the Ovule of *Euphrasia officinalis*, by George Dickie, M.D., Lecturer on Botany, King's College, Aberdeen.

In this paper Dr. Dickie gives a general view of the recent observations relative to the fertilization of the ovule and the formation of the

embryo, and considers, in a particular manner, the formation of ovular tubes in *Euphrasia*. These tubes, which he formerly considered as being prolongations of the apex of the nucleus, he now finds to originate from the interior of the embryo-sac. He has observed the tube within the sac, but has not been able to determine fully its relation to the very minute embryo, although, in one instance, there was the appearance of a connexion between them. He also noticed a remarkable flask-like appendage to the neck of the sac, which he thinks may be similar in its nature to the varicose appendages observed by Planchon in *Veronica*. In the latter plant the sac becomes external, but this is not the case in *Euphrasia*. The tubular filamentous appendage in the plant under consideration, he conjectures, may be a prolongation of the terminal joint of the suspensor.

Dr. Dickie concludes by stating, that he considers the early, or what he denominates the sporoid, stage of the embryo, to be independent of the contact of the pollen-tube with the embryo-sac, although the future stages of development may be determined by the action of the pollen.

3. Dr. Fleming exhibited a specimen of the stem of *D'Urvillea utilis*, *Bory*, from Acapulco, and made some remarks on the peculiarity of its structure, more particularly as regards its transverse partitions and large air-cells. He illustrated his remarks by drawings of the entire plant.

4. Dr. Dickie communicated the discovery of a new Diatomaceous plant, allied to *Meloseira*, in the neighbourhood of Aberdeen. It is the *Orthoseira* of Thwaites, and will be published under the name of *O. Dickiei*. Specimens were exhibited under the microscope by Dr. Balfour. The plant forms a sort of infusorial earth in the place where it occurs. Dr. Dickie also announced from Mr. Thwaites the discovery of a new species of *Dickieia*, consisting of binate frustules at the end of mucous appendages, like the *Omacoccus* of Hassall.

Dr. Bell Salter communicated the discovery of *Zostera nana*, in large quantities, on the shores of the Isle of Wight, near Ryde.

Mr. Babington sent notice of the following plants having been added to the British Flora, since the publication of the second edition of his Manual, specimens of all of which are in his possession, viz.: *Thalictrum minus*, *b. glandulosum*, *Koch*; *Ranunculus Petiveri*, *a Mairii*, *Godr.*; *b. Candollii*, *Godr.*; *Sagina ciliata*, *Fries*; *Campanula rotundifolia b. lancifolia*, *Koch*; *Simethis bicolor*, *Kunth*; and *Carex brizoides*, *Linn.*

Dr. Balfour exhibited specimens of *Ceramium acanthonotum*, from the shores of the Frith of Forth.

Mr. James M'Nab announced the death of Mr. James Smith, of Monkwood Grove, near Ayr, at the advanced age of 88. Mr. Smith has long been known as a scientific gardener, and did much to diffuse a taste for Botany in the district where he so long resided.

The following gentlemen were elected ordinary members of the Society, viz.: Robert Heddle, Esq., 13, Dundas Street; Henry L. Williams, Esq., 15, Dundas Street; and William Gilby, Esq., 30, Northumberland Street. Professor J. E. Wikstrom, Stockholm, was elected a foreign member.—*W. W. E.*

BOTANICAL SOCIETY OF LONDON.

Friday, February, 5th, 1848.—John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from Mr. David Moore, Mr. J. W. Salter, and Mr. F. H. Goulding. Edward Phillips, M.D., F.L.S., of Coventry, Mr. John Dorrington, M.A., of Linton, Cambridgeshire, and Mr. Fenton J. A. Hort, of Trinity College, Cambridge, were elected members.

The following papers were read:—

“On Ergot,” by Mr. S. P. Woodward, A.L.S.; “On the Potato Disease,” by Dr. G. M. Scott; “On the Potato Disease,” by Mr. T. Austin, F.G.S.—*G. E. D.*

Notice of ‘The Flora of Forfarshire.’ By WILLIAM GARDINER. London: Longman & Co., 1848.

THE true uses and objects of a local flora are so simple and familiar as to render it a somewhat remarkable circumstance that there should be so very little of uniformity among the volumes published under the title. Diversity of matter, both the included and the excluded, diversity of form and method, both typographical and scientific, seems to be the only constant rule. Instead of following the best previous model, or improving upon it, each succeeding author strives only to differ therefrom. Instead of uniformity or superiority, the great effort

is to achieve dissimilarity. And yet amid all this diversity how very little can we find either of originality of thought or of genuine novelty of treatment in these works! Old forms and ideas are reproduced in different combinations, insuring the disadvantages of change, without the compensation of improvement.

The explanation of this state of matters, we take it, will be found in the narrow notions with which the authors of most of our local floras have set about their tasks. Few of them appear to have ever conceived the idea for themselves, or even to have imbibed it on the suggestion of more comprehensive thinkers, that a local flora should be also a sectional flora,—that it should be not only a small whole in its local uses and purposes, but also a part of something larger and wider, and such a part as might be united uniformly and congruously with the other parts into the one greater whole. So far from these two objects being incompatible, or difficult to combine in a single work, it seems to be a non-apprehension or non-appreciation of their related fitness, on the part of authors, which has given so much of the chance-medley diversity to the published local floras. The works of this class have hitherto been simply collections of facts, or what were supposed to be facts; and these facts having been seldom recorded with any ultimate aim or object beyond the mere record, they have naturally assumed the local character in its narrowest sense, that of petty and isolated individualities.

The essential requisites in a local flora may be shortly summed up as follows. 1st, it should relate to a definite area, such as a single county or section of a county, which has been well and carefully examined by the author of the flora himself, and the physical features of which ought to be briefly described in his work. 2ndly, a full list of the species which have been ascertained to grow wild within the area fixed upon, invariably and clearly distinguishing from the rest, by difference of type or marks and suitable explanations, all those about which there may be any uncertainty of any kind. 3rdly, the times of flowering of the species, their usual situations of growth, and their comparative frequency or rarity,—all given from actual observation within the area under consideration, and not transcribed from other publications which relate to a different or more extended tract of country. 4thly, the localities of the less common species, more or less minutely described, as circumstances may render needful in the particular cases; but always with the authority for any locality which does not rest upon the eyes of the author himself; as also with a distinction between those localities which are given on report solely, and

those which have been further certified to the author by the evidence of specimens alleged to have been gathered there.

All these items of information should be considered essential in every local flora. Any such publication, in which any of these requisites are wanting or imperfect, is to that extent bad and defective, whatever may be its merits in other respects. Additional information of various kinds may often be advantageously introduced; and under certain circumstances the omission of some other kinds of information would be scarcely less a defect than the exclusion of any of the above specified matters. But the necessity for such additions may be considered special, not general,—a distinctive peculiarity for the district or its botany, be they topographical, historical, scientific, personal, or otherwise. By way of example, we may instance the case of a flora which relates to a mountainous tract, in which the range of altitude for the several species should be indicated as nearly as can be done, at least by successive stages or zones of elevation, if not by measured altitudes. Or, as another example, let us take the case of a flora which treats about the plants of some county or tract, within which there have been suspicious localities or dubious species placed on record, and rendered questionably historical; all of which should of course be carefully investigated, in order to their verification or correction.

There are some additions, and those pretty frequently introduced into local floras, which may be deemed purely optional with the author; and these will consequently be given or omitted in accordance with his own personal views and tastes. In a general way, the optional additions, introduced to gratify the whim or taste of the individual author, will be found to render the work less acceptable to other parties; because they must increase the bulk of the book, add to its cost, and obscure to some extent the essential points of information, without giving equivalent advantages to the purchasers. Among these purely and personally optional additions we would place scraps of poetry, unnecessary references, descriptions of well known species or genera, &c., &c.

Were we to measure the 'Flora of Forfarshire' by our standard above given, assuredly we should find occasion to curtail its dimensions very much, on the balance between matters to be added and matters to be omitted. Of the existing contents we would right willingly dispense with two-thirds, as being either simply superfluous or merely irrelevant; while to the reserved one hundred, out of three hundred pages, we might then add some fifty more pages in order to

include other matters the omission of which we must regard as an actual defect in the work. But we are not wishing to censure this publication just because it is not found to harmonize with our own individual standard of perfection. Whether taken by itself and for itself, or viewed in comparison with other volumes of its class, the 'Flora of Forfarshire' may be honestly pronounced a work creditable to its author's abilities and taste, and an useful contribution to science; and while it exhibits occasional defects and inaccuracies, these are much more than counterbalanced by that which is accurate and valuable.

Among the recommendations of the work, we may probably say that it gives a very full list of the plants, cellular as well as vascular; the latter likely to prove almost a complete list for the county. They are arranged by natural orders, which every local flora ought to be, as was long since particularly urged on local authors by the illustrious Humboldt, the laborious collector and *connector* of local facts in Natural History. Generally, too, the author appears to have written with truth and good faith his opinions respecting the nativity or otherwise of the species, and the reasons for supposing them to be one or the other. And when we look at the reprehensible custom with many other local writers, of straining the truth for the silly vanity of making their district (or its flora) appear rich in botanical rarities, we must regard the greater sincerity of Mr. Gardiner with no small approval. Some notices are occasionally given about the range of altitude over which the species extend, and we could wish they had been more frequent and more precise.

Among the superfluities we would particularly instance a most unreasonable quantity of poetry, irrelevant in a scientific publication, and not of high quality in its own character, being either feebly pretty versifications, or poems of higher mark which have been rendered stale by reiterated quotation. Thus, *Hypericum pulchrum* and *Bellis perennis* usher in some sixty lines of verse apiece; *Primula vulgaris* and *Rubus fruticosus* have over thirty lines each; some two dozen lines are devoted to *Myosotis* in general or generically, and then the *Myosotis alpestris* has near three dozen more for its own particular share,—being mentioned probably for the purpose of bringing in the verses, as that species has not been found in Forfarshire. Numerous other plants are be-tailed with their half-dozen, or one dozen, or two dozen lines of rhyme. Another superfluity is seen in the running references to the pages of Hooker's 'British Flora' and Babington's Manual for each species in succession; as if anything more could be

required for identification, than the giving of synonyms for those species which stand under a different name in the 'Forfarshire Flora.' Nor are these two kinds the only superfluties which might better have been omitted.

Among the defects we reckon the want of regular and sufficiently precise notices relating to the range of altitude for the species. Probably the requisite time and care could not be devoted to actual measurement with instruments; but successive zones might have been adopted, after the example of Wahlenberg, Webb, Watson, and many others; or, failing the power of generalising thus far, the extension of the species inland from the coast, into the glens, and up the mountain acclivities, or to their table-lands, might have been readily indicated in the form of individual facts. In some instances the alleged time of flowering must have been borrowed from the general floras; at least it has been entered *not* on the author's own observation within the county. Various localities are cited on the authority of parties whose names we have never before met with among those of botanists; and being thus quite unprepared to estimate the reliance which may be placed upon their knowledge of plants, we greatly miss the needful intimation whether the author of the Flora had, or had not, seen a specimen of the species from the alleged locality for it. In looking at the species enumerated or commented on under certain genera, such as *Bromus* and *Hieracium*, we cannot escape a conviction that some grave errors have been committed, perhaps attributable to the disadvantages attendant on a provincial residence, far from good botanical libraries and standard herbaria. It is to be regretted also, that the author should not have had the advantage of studying the second editions of Newman's *Ferns* and Babington's *Manual* before printing his own volume. The fifth edition of the 'British Flora,' which is Mr. Gardiner's standard for nomenclature and species, was scarcely brought up to the existing state of botanical knowledge in Britain at the date of its publication, in 1842; and since that time no inconsiderable progress has been made in correcting errors and adding to knowledge on the subject. We regret, also, to see how very little the author of the 'Forfarshire Flora' has been able to effect towards solving the doubts respecting many of Don's plants and localities. Indeed, several of the most dubious county plants are given without a word of doubt or uncertainty, as if their existence there were a point clearly ascertained and admitted. One of the first species concerning which we sought information from the Flora, was *Centaurea Jacca*. It is enumerated among the Forfarshire plants

without a word of comment, and in such form as to make it appear a genuine native.

Various circumstances combine to give more than ordinary interest to a 'Flora of Forfarshire.' Wide diversities of elevation, and consequently of climate, within an area of small extent, offered excellent opportunities and facilities for giving a philosophical character to its published Flora. The botanico-historical and scientific interest which attaches to its localities, through the discoveries of Don, the writings of Smith, and the recorded visits of the Scottish professors and many other distinguished botanists, also add no little to its botanical importance. It is the consideration of such circumstances as these which has given a more general character to our present remarks; and lest it be thought that Mr. Gardiner's volume has suffered by being thus subjected to a more trying comparison than usual with such local publications, we take leave to repeat our honest conviction that, if taken by itself, apart from such considerations and the remarks which may have flowed from them, the 'Flora of Forfarshire' is a valuable and acceptable addition to the published records of British Botany.

C.

Remarks on certain "Excluded Species" placed at the end of the 'London Catalogue.' By JOSEPH SIDEBOTHAM, Esq.

AT the conclusion of the second edition of the 'London Catalogue' is a list of *excluded species*, in which I am sorry to see the names of several favourites, besides a considerable number of species which I always considered on the authority of others as fully naturalized. Would it not be well for every reader of the 'Phytologist' to look over the list, and if he can restore any of the species to an honourable place in our flora, to do so through the medium of its pages?

Allow me to notice one or two.

Oxalis stricta.—I know little of the localities for this plant in the south of England. Mr. Ralfs sent specimens some years ago, which were the first I ever saw: they were from the neighbourhood of Penzance. It is rather a common plant here, occurring as a weed in many gardens and nursery-grounds. In some gardens and potato-fields near Didsbury it is quite a troublesome weed, and my late friend E. S. Wilson found it equally common in the neighbourhood of Congleton.

Gentiana acaulis.—Mr. Townley, of Manchester, gathered this plant several times on sand-hills near Liverpool, where he described it as growing in abundance, far apart from any cultivation. I have seen and possess some of his specimens which were brought in a living state to the late Mr. Crozier.

Datura Stramonium.—Ought we not to consider this plant as fully naturalized as any of our occasional visitors? I have known several instances in this neighbourhood and near Nottingham where it has made its appearance in considerable quantities, where land has been cleared for building, &c.

Castanea vulgaris.—Surely this ought not to be excluded and the poplars retained in our lists. If a thousand years' residence in one country is not sufficient to naturalize a species, I fear many others must be similarly banished.

J. SIDEBOTHAM.

Manchester, February 16, 1848.

Notes on Shropshire Rubi. By the Rev. W. A. LEIGHTON, B.A.,
F.B.S. E. & L.

IN publishing a series of dried specimens* of brambles in illustration of my 'Flora of Shropshire,' it may be perhaps useful to those who possess both these works, as well as to botanists generally, if I insert in the pages of the 'Phytologist' a few notes explanatory of the changes which the valuable researches of Messrs. Babington, Dr. Bell Salter and others have rendered necessary, and the additional knowledge and information which continued investigation in this perplexing genus has brought to light.

In doing this, as every trivial distinguishing mark between various forms in so difficult a genus seems, in our present unsettled state of knowledge, worthy of being noticed, I purpose to set down such characters as I have observed, which, if constant, may prove useful as points of discrimination. They have been gathered from a comparison of a tolerably extensive collection of our British forms, and are offered, not in a decided tone of absolute certainty, but are rather thrown out as hints to students, to test them on the living plants, and

* I may as well take the opportunity of stating that a few copies of the 'Fasciculus of Shropshire Rubi' still remain on hand, and may be had on application to the writer.

if found to be correct to adopt and use them; if otherwise, to reject or correct them. I therefore would wish them to be received and understood in the spirit of Linnæus's mind when he penned the following words: "Quanquam multas observaverim plantas et sedulo quidem, tamen non confido me semper veritatem invenisse."

1. *R. Idæus*, Linn.—I am not aware of any change here.

2. *R. suberectus*, And.

This includes *R. suberectus* and *R. plicatus*, *Fl. Shropsh.* 223. At the time of the publication of the *Fl. Shropsh.* I was not acquainted with the true *suberectus*. But having subsequently an opportunity of showing my friend Babington the plant described as *plicatus* in the *Flora*, in its native locality, he at once recognised it as the true *suberectus*. The synonymy of this species as regards our Shropshire *Flora* will stand thus:—

R. suberectus, And.

R. suberectus and *R. plicatus*, *Fl. Shropsh.* 223. *R. suberectus*, *And. Linn. Trans.* xi. 218, t. 16. *E. Bot.* t. 2572. *E. Fl.* ii. 406. α . *Bab. Syn.* *R. suberectus* (not of *And.*) *Lindl. Syn.* 2nd ed. 92.

The specimens sent by Mr. W. Wilson from Woolston Moor, Lancashire, mentioned in *Fl. Shropsh.* 224, are referred by Mr. Babington to *plicatus* (*Bab. Syn.*).

The sharply pointed, rather elongated and mucronate, double serratures, all directed more or less forward to the apex of the leaves; the prickles of the barren stem confined to the angles, few and distant, short and stout, arising from a dilated base, which they scarcely exceed in length; may be perhaps, as characteristic marks of this species, added to the "attenuated base of the floral leaves," as pointed out in Babington's *Synopsis*.

Of this plant specimens are given in the 'Fasciculus of Shropshire Rubi.'

3. *R. fissus*, *Fl. Shropsh.* 225.

This plant Lindley identified as *R. fissus* of his *Synopsis*, 2nd ed. p. 92, but Babington, in his *Synopsis*, rather questions their identity; inclining to believe this a state of *suberectus*. Be this as it may, I have never seen anything as yet in the plants themselves, which grow together in the same locality, to shake my opinion as to their being distinct. The habit and general appearance of the two plants when seen together are totally different. The colour of the fruit is similar in both, as Babington describes it, "atro-sanguineus:" but the calyx is reflexed in *suberectus*; erecto-patent in *fissus*.

Perhaps as one general characteristic mark distinguishing this from *suberectus*, I might mention the prickles of the barren stem not confined to the angles, very numerous and near together, long and very slender, arising from a very short, contracted base, which they twice or more exceed in length.

Specimens of this are given in 'Fasciculus of Shropshire Rubi.'

4. *R. plicatus*, W. & N.

The specimens given in the Fasciculus of this species are not those of the Fl. Shropsh., but identical with *R. plicatus*, Bab. Syn. I did not know this plant when I published the Flora. For some distinctive marks see under *R. affinis* below.

5. *R. affinis*, W. & N.

I believe the specimens of this species given in the Fasciculus are the true *affinis* of W. and N., Rub. Germ. t. 3, p. 18. My friend Babington kindly concedes me the priority of detecting this addition to our Flora, though only so by a few days. It is, however, highly satisfactory that we arrived at the same conclusion from an examination of plants from different and far distant localities.

This plant is not identical with the *R. affinis* of Fl. Shropsh. 226; the var. β . of which work is now referrible to *R. cordifolius* of W. and N. and Bab. Syn., and the var. γ . to *R. corylifolius* of Smith and Bab. Syn., as will be noticed under those species hereafter.

I would offer the following description:—

R. affinis, W. & N.—Stem suberect or arcuate, angular, nearly glabrous; prickles strong, slightly deflexed or declinate; leaves 5-nate, green on both sides, with silky pubescence underneath, plane at the base, somewhat wavy towards the apex, coarsely crenato-cuspidato-serrated, lowermost stalked; panicle compound, leafy, tomentose upwards, branches cymose, erecto-patent, prickles more or less deflexed; sepals reflexed in fruit, with a long, acuminate point. — *Rub. Germ.* t. 3, p. 18.

HAB.—Shawbury Heath; Haughmond Hill; Gamester Lane, near Westfelton; hedges of Shrewsbury turnpike road, near Westfelton; hedges of Holyhead road, near Bicton Grove, near Shrewsbury; all in Shropshire.

Barren stem suberect, sometimes elongated and arching, angular, furrowed, dark purple, glabrous, or with a few scattered weak hairs. Prickles confined to the angles, large and strong, generally straight and declinate, though sometimes slightly deflexed, from a broad, dilated, compressed, purple base, yellow at the tips. Leaves digitate,

5-nate, on slightly hairy, purple petioles, armed with numerous strong, long, hooked prickles, purple at the base, yellow at the tips. Leaflets moderately coriaceous, yet flexible, plane at the base, more or less wavy on the margins towards the apex (in a young or not fully expanded or developed state very plicate), all stalked, dull green and nearly glabrous, or with only a few scattered hairs above, paler, tomentose, and with soft, silky, shining pubescence beneath, veins prominent, the midrib armed with a few stout, hooked prickles, not so long or stout as those on the petioles. Terminal leaflet large, broadly cordato-ovate or even orbiculari-cordate, generally shortly cuspidate, coarsely crenato-cuspidato-serrated: intermediate pair irregularly roundish-obovate; lowermost narrower, oblong. Stipules linear, with a long point, hairy. Flowering stem angular, with scattered hairs below, which become denser and even tomentose above. Leaves ternate below, large and simple above, becoming narrower as they approach the extremity of the rachis. Panicle compound, leafy, branches cymose, ascending, erecto-patent, hairy, the secondary branches and pedicels hairy and densely tomentose. Prickles large, from a broad, compressed base, rather numerous, deflexed below, straighter and declinate in the upper part: those of the secondary branches and pedicels slenderer and more crowded, more or less curved, or even nearly straight and declinate. Sepals densely tomentose and hairy, white, and with a few short, slender prickles without, white and densely tomentose within, with a long acuminate point, strongly reflexed in fruit. Petals white. Fruit black.

This plant seems allied on one side to *R. cordifolius*, and on the other to *R. plicatus*, though readily distinguished from both. The somewhat plicate leaves, which are of a very different cordate form, easily perceived on comparison, but difficult to express in words, and their differently formed and much coarser serratures, the cymose panicle, and the strong, deflexed prickles on the panicle and flowering shoot, separate it from *cordifolius*, in which the leaves are flat and less coarsely serrated, of a different cordate outline, the barren stems always arcuate, and the prickles on the rather long panicle and flowering shoot slenderer, all straight and declining.

The form and serratures of the leaves, the hairy and densely tomentose panicle and calyx, and the strong prickles of the barren stem, distinguish it from *plicatus*, in which the panicle is pilose, and wants the under coating of tomentum, the barren stems have slender prickles, and the sepals are scatteredly hairy on the outside, chiefly

at the base and apex, the white tomentum with which the inside is entirely lined forming only a narrow white line on the margins.

Mr. Babington, who has communicated his notes to me, quotes Arrhen. Rub. Suec. 25, Fries, Summa, 165, to our plant, and considers it identical with a plant he has from Loch Eil, Scotland.

I think, also, plants gathered at Jardine Hall, Dumfriesshire (No. 15) by Mr. Babington, and others in Cowleigh Park, near Great Malvern, Worcestershire, by the Rev. A. Bloxam, will probably be referred to this species.

Mr. Babington also mentions that he detected (1847) a variety at Llanberis, Caernarvonshire, in which the "leaves are pubescent, but not tomentose beneath, and the prickles of the panicle much fewer, smaller, and more slender."

6. *R. nitidus*, W. & N.

This species, of which specimens are given in the Fasciculus, is not described in the Shropsh. Fl. Mr. Babington identifies our plant with that of his Synopsis. It does not, however, agree with the figure in Rub. Germ. t. 4, though corresponding generally with the description in that work. It is common in the hedges and thickets around Shrewsbury.

It is easily recognized by the coarsely doubly serrated leaves, more or less wavy or plaited on the margins, which in their form and serrature bear much resemblance to those of *R. rudis* α . of the glandulose section. Its flowers are white, conspicuous and showy, the petals hanging loosely. The panicle is usually very large and compound, the branches distant, spreading in a very divaricate form, frequently, as Babington's Synopsis expressively remarks, "nearly at right angles to the rachis."

There is a peculiarity about the panicle which is characteristic, and deserves attention. The peduncles and pedicels divide or branch beyond or above the middle of their length, and the pedicels of the lateral flowers, in every division of the panicle, exceed in length the pedicel of the terminal flower; which causes the flowers to appear as if all arranged on the outside of the panicle, whilst the eye looks amongst the branches as into a skeleton frame-work.

Weihe and Nees, Rub. Germ. p. 20, describe the prickles of the panicle as curved, "ad instar cornu recurvis," but in our plant, although a few recurved prickles may be detected in the lower portion of the panicle, or rather on the flowering shoot where it joins on to the panicle, the generality of them are straight and declinate.

They have also a peculiarity in their arrangement worthy of notice.

They are slender, though strong and very sharp, very various in length, from very short to very long, but being longest and most crowded and numerous about the middle of the rachis, and also about the middle of the peduncles and pedicels; the base of each of the latter being nearly destitute of any prickles.

W. A. LEIGHTON.

Luciefelde, Shrewsbury,
February 17th, 1848.

(To be continued).

Discovery of Viola hirta in Kincardineshire.

By ANDREW KERR, Esq.

ACCORDING to the 'British Flora' of Sir William Jackson Hooker, *Viola hirta* has only been found in the vicinity of Edinburgh, and is consequently rare in Scotland. It therefore gives me much pleasure to state that I found this plant in the month of April, 1847, on the south-east extremity of Kincardineshire, about three miles north-east from the town of Montrose.

Professor Balfour, of Edinburgh, has found it in other places besides the immediate vicinity of Edinburgh, and thinks that the plant is more abundant than was previously supposed.

As it flowers early in the season, it may have been overlooked in many places. I trust these remarks will tend to stir up the enthusiasm of botanists to look out for the early gems of Flora and record localities, as it is only by an acute observation and recording of localities that a proper geographical distribution of the British flora can be obtained.

ANDREW KERR.

55, Murray Street, Montrose,
February 18th, 1848.

Note on the specimens of Sedum reflexum mentioned by Mr. Watson,
Phytol. iii. 46. By MRS. RUSSELL.

HAVING just read in the present number of the 'Phytologist' (Phytol. iii. 46) Mr. Watson's notice of the Tremadoc Rock *Sedum*, sent by me in December to the London Botanical Society, it may perhaps be worth while to state that in the summer of 1839 I gathered and examined numerous specimens from the same locality, and felt not

the slightest doubt as to their being *S. rupestre*. On my stock being exhausted, I begged my friend Miss Holland to send me the further supply which has been communicated to the Society. I saw the same plant growing in abundance, together with *S. Forsterianum*, on the rocks at Barmouth, where the two varieties pass so insensibly into each other that it is almost impossible in some cases to draw the line between them.

ANNA RUSSELL.

Brislington, February 21, 1848.

[Mr. Watson having done me the honour to mention my name in connexion with the British species of *Sedum* (Cyb. Brit. 401), I may say that I am quite at a loss to understand how any confusion can exist between plants which appear to me so extremely different as *Sedum reflexum* and *Sedum rupestre*. It will be of little avail to point out discrepancies where I can find no point of similarity except in the colour of the flowers. Still, without noticing botanical characters, I cannot avoid calling attention to the difference in size; *S. reflexum* being four times larger than *S. rupestre*, and when the two are cultivated in company its stems stand out amongst those of *rupestre* "as oxen among sheep." The discrepancies between *S. rupestre* and *S. Forsterianum* are much more subtle; the size, habit and entire superficial appearance are similar, colour alone excepted, yet the colour is so constantly and so decidedly distinct that they are instantly separable by this single character. In cultivation the discrepancy becomes still more marked, and the different *constitutions* of the plants is observable: placed on a dry wall at Peckham, *rupestre* thrives, but *Forsterianum* dies; placed under the drip of water, *Forsterianum* thrives, but *rupestre* dies. I have never found *rupestre* except on the driest parts of exposed rocks: I have never found *Forsterianum* except in the spray of waterfalls. I was not fortunate enough to meet with it at Barmouth, where Mrs. Russell records its occurrence.—*E. N.*].

On the Equisetum fluviatile of the 'London Catalogue of British Plants.' By EDWARD NEWMAN.

SINCE Mr. Watson published his remarks (Phytol. iii. 1) in defence of the omission of *Equisetum fluviatile* from the 'London Catalogue of British Plants,' that gentleman has examined the Linnean speci-

mens so named in the herbarium of the Linnean Society. At the present moment I am also sending to Mr. Watson for his inspection ordinary examples of that common plant which I have figured and described under the name of *Equisetum fluviatile*. I shall feel much obliged to Mr. Watson if he will state in an early number of the 'Phytologist,' whether he considers the Linnean specimens and those of the common London plant which I have sent him, are or are not individuals of one and the same species?

Believing that Mr. Watson will at once decide that the specimens in question belong to the same species, and will with his usual candour give the public the benefit of his decision, I will venture on a second question. Knowing that a discrepancy has not unfrequently been detected between descriptions and the specimens to which they are supposed to refer, I would ask Mr. Watson whether he detects any discrepancy between the descriptions and specimens of Linneus in the present instance that induce any doubt as to their perfect accordance?

Supposing that Mr. Watson's answers favour my view of this subject, I shall consider it worth while to point out what I believe to be an original error on the part of Fries, and a copied error on the part of Mr. Babington; but on the other hand, supposing Mr. Watson answers my questions in the negative, I shall not presume to trouble the readers of the 'Phytologist' with any further remarks upon the subject.

EDWARD NEWMAN.

Peckham, February 25, 1848.

Botanical Extracts from James Backhouse's Visit to the Mauritius, &c.

Signal Mountain.—"The soil of this narrow, basaltic ridge is good, and produces grass and bushes, with many beautiful plants, some of which have originally belonged to other countries, but have become naturalized. Here we gathered an elegant fern, *Adiantum rhizophorum*, growing in the crevices of the rocks. The facility with which plants establish themselves in such a climate and soil, renders it difficult to distinguish between those originally native and those introduced. Among the latter is *Omocarpum sennoides*, the plant producing the little, scarlet, bead-like peas with black ends, often seen

in cabinets in England: it is a trailing bush, with spikes of small, pink pea-flowers, and rather dirty-looking pods.

“Before breakfast, I walked to the ascent of the hills behind Port Louis. The trees in this part are not lofty. The tamarind (*Tamarindus indicus*), is about as large as the ash: its branches are slender, and its leaf small: its fruit was nearly over; most of the pods had become dry, and were perforated by insects. Before ripening, they are powerfully acid, but in this state they are used in curries, and are eaten with salt, which is also used in this country to moderate the acid of sour oranges, &c. The fragrant Mauritian jasmine (*Jasminum mauritianum*), with eight-cleft flowers and trifoliate leaves, and numerous other shrubs, were growing thickly in various places, and great numbers of a beautiful butterfly were feasting on the nectar of *Tiaridium indicum*, a plant resembling heliotrope, and called in this country *herbe aux papillons*, or butterfly’s plant.”—p. 7.

3rd Mo. 19th. —“I walked to the Cemetery, which is at a short distance from the town, and near the sea. It is approached by a long avenue of the Filao (*Casuarina lateriflora*), a leafless tree from Madagascar, attaining to a considerable height, and having drooping branches, clothed with green, slender, pendant, jointed, rush-like spray, through which the wind whistles with a mournful sound.”—p. 12.

“On the borders of a shady part of the road near Pamplémousses, the beautiful orange and white varieties of *Thunbergia alata* were growing, much in the manner that ground-ivy grows in England; and by the side of a brook, there was a species of *Papyrus* or paper reed; and a remarkable palm from Madagascar, from the fibres of which beautiful cloth, resembling stuff, is manufactured.”—p. 16.

“In the rocky wood at the head of the aqueduct there are several fine ferns; among them is one which closely resembles *Acrostichum fraxinifolium* of Moreton Bay. A beautiful climber of the *Convolvulus* tribe, *Quamoclit angulata*, produces such a profusion of scarlet flowers among the shrubs that border the river, as to have obtained a name signifying “fire in the bush.”—p. 23.

“The traveller’s tree (*Urania speciosa*), forms a striking feature in the prospect. Clumps of these trees, composed of several stems rising from the same root, are scattered over the country in all directions. The trunks, or more properly root-stocks, which are about three feet in circumference, sometimes attain to thirty feet in height; but whether of this elevation, or scarcely emerging above ground, they support grand crests of leaves, of about four feet long, and one

foot wide, but often torn into comb-like shreds. The head is of a fan-like form, and the flowers, which are not striking for their beauty, are white, and produced from large, horizontal, green sheaths. The foot-stalks of the leaves, which are somewhat shorter than the leaves themselves, yield a copious supply of fresh water, very grateful to the traveller, on having their margins cut away near to the base, or forced from contact with those immediately above them, especially those about the middle of the series. The root-stock is of a soft, cellular substance, and the fruit, which resembles a small Banana, is dry, and not edible. This remarkable vegetable production is said to grow in the most arid countries, and thus to be provided for the refreshment of man in a dry and thirsty land. Probably the water may originate in the condensation of dew, and be collected and retained by the peculiar structure of the leaf: it has a slight taste of the tree, but is not disagreeable. The Badamier (*Terminalia Badamia*), a handsome tree, with large, obovate leaves, and fruit the size of an almond in its husk, abounds in this direction. The spongy shell is so tough as to render access difficult to its small kernel, which is like a young hazelnut in flavour. A species of cinnamon (*Laurus cupularis*), forms a handsome bush in the borders of the woods. I also noticed a species of Minusops, forming a small tree, with a fruit the size of a nonpareil apple.

“The mango (*Mangifera indica*), which was introduced into this Island, had become naturalized here, along with several other fruit trees, such as the apple-fruited Guava (*Psidium pomiferum*), and the Jamrose (*Jambosa vulgaris*). The pineapple (*Bromelia Ananas*), forms impassable thickets: its fruit is sold for a few pence at the bazaars. *Gloriosa superba*, or an allied species of this beautiful plant, of the lily tribe, was growing in an elevated wood, by the side of a streamlet, on the borders of which *Andromeda salicifolia* formed a considerable tree. Numerous species of *Pandanus*, or screw-pine, ferns, climbers of the *Convolvulus* tribe, some of which were very beautiful, and many other interesting plants, were also growing here.”—p. 31.

“Here we explored some portions of the forest which covers the mountain territory lying toward the centre of the Island, and some of which is nearly 2,000 feet above the level of the sea. Some of the trees exhibit the luxuriance common to a tropical climate, and have a variety of Orchideous epiphytes, ferns, *Peperomias*, &c., growing on their trunks, while others are dead or dying, from the combined injury of hurricanes and white ants.”—p. 33.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, February 10th, 1848.—The Rev. Dr. Fleming, President, in the chair.

Donations to the museum and library were presented. From Colonel Low a collection of plants from Penang; from Mr. D. Boyle a large collection of plants from Geelong, near Port Philip; Scottish plants from Mr. Evans; the 'Flora of Forfarshire' from Mr. W. Gardiner, Dundee; 'Botany of the Bass' from Dr. Balfour, &c. The thanks of the Society were voted to the donors.

The following communication was read: "Account of a Botanical Excursion to Braemar, Clova, and Ben Lawers, with pupils, in August, 1847," by Professor Balfour. Having made some general observations on the Botany of the alpine districts of Scotland, Dr. Balfour proceeded to give a detailed account of the localities visited and the plants gathered.

From Aberdeen the party went to Ballater, thence by Lochnagar to Castleton of Braemar, where they remained ten days, examining Ben Aven, Ben na Muich Dhui (on the top of which they slept for a night), Cairn Toul, Breriach, Glen Callater, Clova, Glen Isla, &c. Leaving Braemar, they walked by Glen Tilt to Blair Athol, and thence by the Pass of Killiecrankie to Kenmore, Ben Lawers, and Loch Lomond.

All the usual, and many very rare alpine species were gathered. *Carex leporina* was picked both on Lochnagar and on Cairn Toul; *Carex vaginata* was found on every hill in the Braemar district; *Woodsia hyperborea* was gathered in Glen Isla, Glen Phee, Clova, and on Ben Lawers; and *Luzula arcuata* was seen on all the lofty summits in the vicinity of Ben na Muich Dhui: *Mulgedium alpinum* was detected in considerable quantity on Lochnagar; also a beautiful variety of *Hieracium alpinum*, with remarkably long leaves, and involucre covered with long, white, silky hairs: it is probably the *H. villosum* of Smith, or *H. alpinum*, var. *longifolium* of 'Flora Silesia.'

In the vicinity of Ballater, and also in Glen Tilt, *Equisetum umbrosum* grew in profusion. The sides of Loch Etichan and the rocks near Loch Aven were covered with numerous alpine varieties of *Hieracia*, presenting remarkable transition forms; among them were *H. alpinum*, *Halleri*, *nigrescens*, *Lawsoni*, &c.

Orobanchis niger was gathered at the Pass of Killiecrankie.

Dr. Balfour then made some remarks on the progress of vegetation in the vicinity of Edinburgh, and the injury done by the late frost, in the course of which he stated that *Galanthus nivalis* was in flower in the Botanic Garden, and *Eranthis hyemalis* in Dr. Neill's garden, on the 10th inst.

The following gentlemen were elected ordinary fellows, viz., Alexander Christison, Esq., 40, Moray Place; John M'Gilchrist, Esq., 8, Keir Street; George Edward Allshorn, Esq., 63, Hanover Street; William Douglas, Esq., 47, George Square; J. H. Skinner, Esq., 18, Carlton Terrace; Dalhousie Tait, Esq., 7, Shandwick Place; Philip J. Van der Byl, 41, Clerk Street.—*W. W. E.*

Note on some examples of Polystichum angulare distributed by the Botanical Society of London. By THOMAS MOORE, Esq.

IN noticing some specimens of *Polystichum angulare*, which I communicated to the Botanical Society of London, Mr. Watson has remarked (*Phytol.* iii. 45) that he does not know why they are distinguished by a series of numbers—1 to 7. As most of those into whose hands the specimens have fallen are probably readers of the '*Phytologist*,' I may perhaps be allowed to offer a few remarks explanatory of the reason why the specimens sent to the Society were thus distinguished. They were intended to illustrate some of the varieties of form and character which this species of fern assumes, even in the same locality, and growing under circumstances precisely similar. The plants from which were gathered the fronds which have been distributed, were all growing on the same bank, within perhaps twenty yards of each other, and subjected to no appreciable difference of circumstance; and yet each plant presented more or less apparent differences, and probably no two of the many plants there growing would be found exactly identical in the shape of their pinnules, and in the development of the spinose serratures, and the basal lobe. It was thought that those who had never paid attention to the variations which occur among the individual plants of these species of ferns, might be interested in this evidence of that variation, occurring under circumstances in all respects similar; and those who had not yet learned the lesson, that in nature the groups of individuals which we call species* are not moulded with the precision of an artist, might

* Can any reader of the '*Phytologist*' give a good definition of what should be understood by a "species?"

learn it if they chose from such examples as these. This consideration alone will show that they were chiefly intended for those who are not very far advanced in the study of Botany.

THOMAS MOORE.

Camden Town, March 3, 1848.

Correction of a previous Error. By THOMAS MOORE, Esq.

I REGRET to see that either myself or the compositors have committed two errors in the few remarks on *Cyperus fuscus* inserted in the 'Phytologist' (Phytol. iii. 58); which errors exactly reverse what I had intended to say. The first sentence should read thus: "I find it stated in Mr. Babington's Manual and Mr. Steele's Handbook, that *Cyperus fuscus* is a perennial;" and the latter part of the last sentence thus: "nevertheless, there seems no ground to doubt that *Cyperus fuscus* is only of annual duration." The subscribers to the 'Phytologist' will therefore be so good as to erase the words "annual" and "believe" in the places referred to, and substitute "perennial" and "doubt."

THOMAS MOORE.

Camden Town, March 3, 1848.

Is Gentiana acaulis wild in England?

By HEWETT C. WATSON, Esq.

MR. SIDEBOTHAM has greatly surprised me by stating that the *Gentiana acaulis* has been gathered "several times on sand-hills near Liverpool," and was found there "growing in abundance;" moreover, that he possesses specimens brought thence in a living state. (See Phytol. iii. 71). This seems to be pretty strong evidence; and yet it is evidence which I feel unable to accept as a sufficient reason for taking the *Gentiana acaulis* out of the list of "Excluded Species" in the 'London Catalogue of British Plants.' The improbability of the alleged fact appears to me sufficient to overbalance the testimony in its support, and to render it more likely that the evidence is defective through some error as to the species or its wildness. The sand-hills near Liverpool have been very frequently scoured by botanical collectors during the last quarter or half-century; and yet we do not

find *Gentiana acaulis* mentioned in the 'Flora of Liverpool,' published within these ten years. It is difficult to conceive so showy a plant remaining unseen on a frequented tract of land, which is covered only by a thin and short vegetation. And as three other species of the genus, — *campestris*, *Amarella*, *Pneumonanthe*, — have undoubtedly been collected there, it is likely enough that one of these three has been mistaken for *G. acaulis*.

The only other reported British locality, so far as I am aware of any, having been given up as erroneous by general consent, I must still consider the species to have been rightly placed in the "Excluded" list. But I shall be very happy to see it restored "to an honourable place in our Flora" if sufficient ground be shown for such a position; and equally so of any other species at present among the "Excluded." Certainly the other three species mentioned in Mr. Sidebotham's communication are introduced and imperfectly naturalized species.

HEWETT C. WATSON.

Thames Ditton, 4th March, 1848.

Distribution of Viola hirta in Scotland.

By HEWETT C. WATSON, Esq.

It is curious to observe how long a time an error will continue to be repeated after having been once sent into circulation on influential authority. Mr. Andrew Kerr's communication on *Viola hirta* affords an example of this tendency to the repetition of error, even while the means of correction are ample. (See *Phytol.* iii. 76). And yet we can scarce be entitled to censure that gentleman for relying upon so high an authority as Sir William Hooker, without looking further into the accuracy of a statement too hastily made by the latter.

Mr. Kerr introduces a record of his discovery of a locality for *Viola hirta*, just within the county of Kincardine, by remarking that, "According to the 'British Flora' of Sir William Jackson Hooker, *Viola hirta* has only been found in the vicinity of Edinburgh, and is consequently rare in Scotland." Such a statement appears even in the last edition of the 'British Flora,' that of 1842. But Mr. Kerr makes it rather worse, when, in his next paragraph, he converts "vicinity" into "immediate vicinity." I proceed to show how easily the cor-

rection could have been made, without still repeating the error in 1848. And I add the dates of the works from which the extracts are taken, to show that some of the counter statements have been long before the botanical public. The *Viola hirta* is mentioned also in Don's list of Forfarshire plants, but I have not a copy at hand.

1777. *Lightfoot's Flora Scotica*.—"In the county of Dumfries very frequent, but rare in the Lothians, and the eastern side of Scotland."

1807. *Thompson's Catalogue of Berwick Plants*.—"New Mill Banks."

1824. *Woodforde's Catalogue of Edinburgh Plants*.—Localities are here compiled from other sources, in the counties of Edinburgh, Haddington and Fife.

1847. *Watson's Cybele Britannica*.—In this work it is stated that *Viola hirta* occurs in three of the six Scottish Provinces, namely, in the West Lowlands, East Lowlands, East Highlands; and that it extends northwards into Forfarshire.

1848. *Gardiner's Flora of Forfarshire*.—Three localities are indicated in the county of Forfar, under the head of *Viola hirta*.

Thus, including Mr. Ker's added county of Kincardine, this violet has been recorded from seven of the Scottish counties.

HEWETT C. WATSON.

Thames Ditton, 4th March, 1848.

Reply to Mr. Newman's Queries on the Equisetum fluviatile of the Linnean Herbarium. By HEWETT C. WATSON, Esq.

MR. NEWMAN has addressed to me in the pages of the 'Phytologist' two queries respecting the *Equisetum fluviatile* of the Linnean herbarium, and has desired to have answers thereto through the same medium (see Phytol. iii. 77).

First, Mr. Newman intimates that he had sent me specimens of the plant described and figured by himself under name of *Equisetum fluviatile*, and inquires whether I consider them to belong to the same species as the specimens so named in the Linnean herbarium?—I have compared the specimens from Mr. Newman with those in the Linnean herbarium, and do not find the slightest reason to doubt their being "individuals of one and the same species."

Second, Mr. Newman inquires whether I detect any discrepancy

between the descriptions and specimens of Linneus, which induces a doubt as to their perfect accordance?—I reply, that the four specimens named *Equisetum fluviatile* in the Linnean herbarium correspond with the description of *Eq. limosum* (“caule subnudo”) in the ‘Species Plantarum’ more exactly than they correspond with the description of *Eq. fluviatile* (“frondibus subsimplicibus”) in the same work; only one of those four specimens corresponding strictly with the description of *Eq. fluviatile*, while all of them might be included under that of *Eq. limosum*, and three of them most precisely. To this extent there is discrepancy between the Linnean description and specimens of “*Equisetum fluviatile*.”

I should prefer not to add another word here, having replied to the queries; but some ambiguity arises from the title of Mr. Newman’s article not corresponding with the queries. The *species*, *Eq. “fluviatile”* of the Linnean herbarium *is included* in the ‘London Catalogue’ under name of *Eq. limosum*,—a name which it bears in the ‘Species Plantarum’ of Linneus, and in the works of English authors generally.

HEWETT C. WATSON.

Thames Ditton, March, 1848.

[The matter must end here for the present. I did not anticipate such an answer to the second question: I am willing to admit that either description will apply to the Linnean specimens, as indeed they should do, since they describe the same plant.—*E. N.*]

Botanical Extracts from James Backhouse’s Visit to the Mauritius and South Africa, in 1838.

Port Louis.—“In the course of a walk, I met with the noble *Rivea tiliæfolia* in blossom: it is a climbing plant of the *Convolvulus* tribe, growing on the coast, among the grass and bushes. The flowers are deep pink, and upwards of four inches in diameter; the tube slightly bell-shaped, and much darker than the rest of the blossom; the five ribs of the flower are also of a deeper hue than the rest of the disc. Many other beautiful plants of the *Convolvulus* tribe are natives of this Island, especially of its eastern side.”—p. 52.

Waterfall behind the Duivelsberg.—“Rainy weather having prevented our taking needful exercise for some days, we accompanied William Henry Harvey, and a botanist of his acquaintance, to a waterfall behind the Duivelsberg or Devil’s Hill, which is attached to the eastern portion of Table Mountain. The body of descending

water is not large, nor does it fall perpendicularly, but it rushes down a narrow, bushy gorge, from a considerable height, at an angle of about 85 degrees. The ravine is crowned by cliffs, and decorated by *Todea africana* and several other ferns, abundance of brambles, some low trees, and several heaths. By the path ascending to this spot, which passes a deserted, square signal-station, *Anemone capensis*, *Antholyza æthiopica*, and several other handsome plants were in flower. The view of Table Bay and Cape Town, with the adjacent sandy flats, and the more distant mountains, is very fine from these hills. The mountains were still capped with snow. On the lower grounds many pretty plants were in flower; among them were various species of *Lachenalia*, *Moræa*, *Homeria*, *Hesperantha* and *Gladiolus*. The arid parts of the country seem full of small bulbous roots; in the spring, which is now commencing, they send up their beautiful blossoms in profusion. Many of them have fragrant flowers.”—p. 80.

Table Mountain. — “In company with W. H. Harvey I ascended Table Mountain, which is 3,582 feet high. This mountain is chiefly composed of sandstone, which rests on argillaceous rock, below which granite emerges in several places. In one place, near a deserted house called *Plaat Klip*, *Flat Rock*, there is a small vein of basalt. The lower sandstone is reddish; the upper, forming the cliffs, very white and compact. The rain which falls on this mountain, filtering through the sandstone, forms numerous rivulets, several of which descend in cascades, among the bushy rocks of the valleys of the middle region of the mountain. One of these rivulets is brought into Cape Town, under a covered conduit, for the supply of the town. — Table Mountain is ascended by a narrow, stony gorge, that passes behind a thin portion of the cliff. The top of this mountain, in common with others on the south coast, is often enveloped in fog, particularly when the wind blows from the south-east. These fogs look from below like milk-white clouds, with margins pouring over the edge of the cliffs; they are very prevalent in summer. A fog coming on, we speedily descended, having gathered a yellow *Disa*, a plant of the *Orchis* tribe, on the top, and a pink one, with some heaths, in the gorge; and the elegant blue *Agathea parvifolia*, which resembles an *Aster*, among the bushes below.

“In a walk on the ascent of Table Mountain, we noticed a fine *Leucodendron*, forming an erect bush, four feet high; the flowers almost equalled those of a *Magnolia*, the pale bractæas of the *Leucodendron* supplying the place of petals. A singular scarlet parasite,

Cytinus sanguineus, was growing from the roots of an *Eriocephalus*, a little, hoary, Aster-like bush.”—p. 85.

Cape Flats. — “Many pretty flowers decked this portion of the Cape Flats. Among them were a pink *Watsonia*, resembling a corn-flag, a yellow, Iris-like *Moræa*, an orange *Gazania*, and a few pink and white *Mesembryanthemums*, somewhat of the form of marigolds.”—p. 88.

Heaths. — “The Cape Flats are generally sandy, but beds of impure limestone occur upon them. They are thinly covered with low bushes and herbaceous plants. Various species of heath, *Erica*, grow upon them; some of these are very beautiful, but they do not cover the country as in some parts of England; most of them are thinly scattered. A yellow, fetid *Corycium*, and several fragrant species of *Satyrium*, plants of the *Orchis* tribe, were abundant: the latter were green, white and orange.”—p. 89.

Erica Massonia. — “The new road is cut out of the sandstone, and has a toll upon it. Along its sides, and on the top of the mountain there are many beautiful shrubs and plants, among which the most striking are *Proteas*, heaths, everlastings, *Gladiolas*, *Watsonias*, *Ixias*, and plants of the *Orchis* tribe. The beautiful *Erica Massonia* was growing on a springy hillock by the side of the road. Seeing it reminded me of having heard of one of the early collectors of plants in this country going out to seek it, and meeting some oxen with a wagon, having this fine heath, with its large, waxy blossoms, of red and green, fastened to their heads to drive off the flies.”—p. 91.

Helichrysum proliferum. — “In the course of the day I walked to the top of a hill, on which *Helichrysum proliferum*, a beautiful, crimson everlasting, was growing in profusion among low rocks of ferruginous sandstone. The plants were about the size of gooseberry bushes, covered with flowers, and as fine as I ever saw them when highly cultivated in an English greenhouse. This is not generally the case with wild shrubs: they are broken by storms and cattle, and overgrown one by another in the situations where they grow naturally, but when cultivated they are carefully protected from injury.— At dinner we partook of the boiled flower-stems of *Aponogeton distachyon*, which were very palatable; they are called in the Colony *water uyentjes*, *water onions*.”—p. 101.

Juncus serratus. — “The margins of this river are choked, in many places, with a remarkable rush, *Juncus serratus*, called in the Colony “*Palmit*, *Palmetto*.” it has broad, keeled, and sharply serrated leaves, and a stout rootstock or trunk, which sometimes attains to five

or six feet in height, and a foot and a half in circumference." — p. 103.

Beautiful Forests. — "The woods in this part of the country are extensive, and interspersed among the grassy hills. Many of these forests are very beautiful: the trees are large, and much over-run with climbers. The stinkwood (*Laurus bullata*), and the yellow-wood (*Podocarpus elongata*), are the kinds chiefly cut: the former is allied to the bay, and the latter to the yew. Yellow-wood is the prevailing tree in the forests, and by the sides of rivers, on the eastern side of South Africa; it is often rendered conspicuous by a long, shaggy, green lichen, with which it is generally clothed. Parasitical plants of the Orchis tribe are common on the trunks and branches of trees in the forests; one we saw to-day had pretty, white flowers. Baboons, monkeys, bush-bucks, spotted hyænas, leopards, buffaloes and elephants are inhabitants of these woods: the two latter animals are, however, scarce, and when a leopard is discovered it is hunted unremittingly, till destroyed."—p. 131.

Species of Euphorbia. — "The intervening country was poor and bushy, interspersed with little salt-flays, or dried-up pools, bordered with maritime plants. In one place I noticed the *Euphorbia meloformis*, a plant in form resembling the fruit of a melon, half buried in the earth. There are also some other remarkable species of *Euphorbia* in this part of the country; one of them has scorpion-like, prostrate stems; another has thick, angular, spinous, upright stems, about three feet high. The last is called morse doorn, *nasty thorn*. The Zwartkops Rivier is a clear stream with deep pools on a gravelly bed; its banks are margined with willow and *Acacia caffra*."—p. 161.

Remarkable Plants. — "We also observed several remarkable plants, such as a large *Lyperia*, a bulb, bearing a blossom like the white variety of *Scilla peruviana*, a *Sparaxis* with large, pendulous, cylindric, crimson flowers, and another with small, irregular flowers, also a scarlet *Satyrium* and a *Lobelia*, blue on the under lip, blue and purple on the upper lip, and yellow on the palate. The two last were on the margin of a little stream, by the side of which we took off our saddles and dined. Further from Philipton the mountains became stony and dry. On their ridges there was a remarkable *Zamia*, with a root-stock about three feet high, and rigid, palm-like leaves of yellowish hue. Nearer Shiloh the country became drier, the grass was short and brown, and many of the hills were besprinkled with doornboom. Another species of *Acacia* (*Acacia elephantorrhiza*), also abounded here on dry, light soil; it had large, compoundly-pinnate

leaves, and pods about six inches long; it was not more than a foot and a half high, but had a creeping root, and spread over much ground; it had much the general aspect of a handsome fern.”—p. 199.

Pappea capensis. — “In the evening, accompanied by John Read and two other boys, I visited a steep wood, contiguous to the river, to see the tree known in the Colony by the name of Prum, or Caffer-plum (*Pappea capensis*). It attains to forty feet in height, and has pinnate leaves and spiked flowers. The fruit is about an inch long, and has a thick, orange-red skin, covering a thin, viscid, pleasantly acid pulp, of a flavour like the Tahitian-apple (*Spondias dulcis*), which the tree greatly resembles. There is also now ripe in the woods a small oval, red berry, called zuur bezy, sour-berry; it is of moderate and sweetish flavour when thoroughly matured, and is produced by a thick bush, having small leaves and opposite, straight, green thorns.” —p. 205.

Euphorbia grandidens. — “At a short distance from the house there is a remarkable copse, consisting chiefly of the chandelier Euphorbia (*Euphorbia gradidens*). The leaves of this tree are confined to the young portions of the shoots, and are so small as to pass almost unnoticed. The thick, erect, angular, green stems seem to form its verdure, and its trunk, which may be thirty feet high, is, in some instances, as thick as a man’s waist. At this place I first noticed a small species of coral-tree (*Erythrina*); it was about a yard high, and bore long spikes of large, crimson, pea-like flowers. It is scattered thinly over this part of Caffraria.”—p. 226.

Phœnix reclinata. — “In some of the narrow, woody valleys about the Kap Rivier, and the adjacent parts of Albany, the Little Date (*Phœnix reclinata*), abounds; it has pectinate leaves, and attains to about ten feet in height. It is a highly ornamental little palm, and frequently bears the name of coffee-tree, because of the form and size of its seeds, which nevertheless are not available for the purposes of coffee. Children eat the thin, sweet coating of the fruit.” —p. 293.

Strelitzia, &c. — “Our road lay, for a considerable distance, along the bottom of the deep, woody ravine of the Kowie, in which a species of Angrecum? was growing as an epiphyte upon the trees, and exhibiting its small, yellow blossoms. The beautiful *Strelitzia regina* was abundantly in flower on the north side of the ravine: it is very plentiful in this country, growing in large tufts among the bushes. Its leaves have a flag-like appearance, they are spoon-shaped, and on stout footstalks; its singular orange blossoms, three inches long, with purple, tongue-like anthers, are produced from the upper side of a

large, horizontal sheath, on the top of a stalk, and present a very remarkable appearance. The seeds of the large, white-flowered species, *Strelitzia augusta*, which grows nearer the coast, are edible.”—p. 296.

Aloe ferox.—“Near one part of the road an *Aloe*, with a tall trunk, *Aloe ferox*? formed a splendid object; its flower-stems were from three to four feet high, some of them with one or two upright branches; the blossoms were tubular, and shaded with red, orange and yellow; they clothed the stems from the base, so as to form spikes the thickness of a man’s arm. This plant is represented in the etching at page 293, along with *Testudinaria Elephantipes*, *Hottentot’s bread*, found on the karroo about Uitenhage, *Phœnix reclinata*, the little date of the valleys of Albany, *Euphorbia meloformis*, the melon-formed *Euphorbia*, and *Euphorbia heptagona*, one of the morsdoorns, from the vicinity of Uitenhage; *Aloe arborescens*, the tree aloe, and *Acacia giraffe*, the kameel doorn, of Namaqua Land.”—p. 326.

Notice of the ‘Tyneside Naturalists’ Field Club, for the year ending February, 1847.’ Vol. i. Part 1. Newcastle, 1848.

PROVINCIAL Societies for the promotion of Natural History too frequently prove unsuccessful, after starting with large promises and prospectuses, which are shown to have been little better than bombastic delusions when the time arrives for asking about their results and realizations. At the first getting up of such an association there is frequently a good deal of zeal and activity, the temporary effervescence of which is misread into an earnest of permanent support and prosperity. Large schemes are consequently planned on paper, and a rate of expenditure commences out of present subscriptions and donations, which the true permanent revenue of the society is afterwards found quite inadequate to continue. Disappointment and debt, diminished zeal and exhausted activity, with other depressing conditions, gradually supervene; leaving the institution to drag on a precarious and useless existence, if its career does not become abruptly terminated in a sale of effects, or a very unwilling subscription to pay off its liabilities.

In large towns, where a numerous body of subscribers may be obtained, and a sufficient number of scientific men dwell within moderate distance from each other, a Natural History Society may exist in some degree of activity and usefulness; that is to say, a museum

may be formed and supported, and the usual routine of thinly attended meetings may take place. Some degree of good is thus effected, although more in the way of diffusing a taste for the pursuit of Natural History than in really contributing to the progressive advancement of science; and the degree of good which is effected is found to be rather costly if measured by the outlay to produce it.

Such institutions cannot be formed in the smaller towns, on account of the scanty numbers of scientific supporters or subscribers who would club together for this purpose. A substitute is attempted in associations of members by counties, instead of by single towns. A failure is the result; very much because the originators or managers of the county societies unwisely endeavour to imitate the urban associations in those which are intended for a vastly more extended and thinly peopled area. A museum is attempted; but as the museum must be in one place, while the members or might-be-members are in many places, the attempt proves unsuccessful. A library is commenced by a few donations of volumes, but makes little progress; the scattered habitats of the subscribers or members being almost equally as unfavourable to a library as to a museum. Meetings to hear papers read are also attempted, but as nobody comes to hear them, beyond two or three of the office-bearers on the spot, meetings and papers are very flat affairs.

In short, county societies require to be instituted on plans quite different from those suitable for large towns, and will fail as often as they are made imitations of the urban associations. They should rather be unions of scientific men for the purpose of combining their local investigations into one common fund or contribution to science. How valuable, for example, would be a series of published county 'Natural Histories,' including the four departments of Meteorology, Geology, Zoology and Botany, incorporating into one whole the local investigations of all the resident naturalists of the county! These would be more useful to the naturalists of the county, both while in course of preparation and also when completed, than are the abortive attempts at museums, libraries and meeting-rooms, which are in vogue at present. And their usefulness would extend far beyond the limits of their county. Nor do we think they would prove expensive to the parties by whose joint exertions they would be produced. If the necessary outlay should not be covered by the subscriptions of other residents for copies, or by sales to the public, the deficiency would be divided among several, and fall lightly on each. The 'Field Clubs' may be considered as societies of an intermediate character,

combining the advantages of personal intercourse among those of congenial tastes, with the acquisition of knowledge by local explorations; at the same time, escaping the unprofitable outlay on libraries and museums, and the always unsuccessful attempt to keep up meetings at one fixed centre, too distant from the circumference.

Our attention has been drawn to this subject by receipt of an unpretending publication, yet one by no means without merit and value, the title of which stands at the head of this article. The contents of this 'First Part' being chiefly zoological, they do not properly belong to the 'Phytologist.' But there are rules and resolutions bearing on the subject of our introductory remarks which may afford useful suggestions towards the formation and arrangement of other local associations; and under this impression we shall here reprint some of them, premising, by way of caution against misapprehension, that we omit two-thirds of the rules, &c.

"That the members of the Club shall hold five field-meetings during the year, in the most interesting localities for investigating the Natural History and antiquities of the district. That the places of meeting be selected by the Committee," &c.

"That those members to whom it may be convenient shall partake of breakfast together, at the nearest country inn, at ten o'clock, after which the researches of the day shall commence."

"That the hour for a frugal dinner be appointed by the chairman, during [after?] which any papers which he may have received from members of the Club shall be read from the chair."

"That as members must incur some trifling expense in reaching the place of their field meetings, no subscription to any general fund be required beyond the amount of five shillings yearly, to be laid out," &c.

"That at the close of each year the president be requested to favour the Club with an address, containing a written summary of its proceedings at the several field meetings, together with such observations from himself as he may deem conducive to the welfare of the Club and the promotion of its objects."

"That the Tyneside Naturalists' Field Club undertake the formation and publication of correct lists of the various natural productions of the counties of Northumberland and Durham, with such observations as their respective authors may deem necessary. Also that a succinct account of the geology of the district be prepared."

"That as mistakes may occur in the proposed lists, and as it is of importance that an authentic collection should be accessible when

any doubt may occur as to a name or species, that local collections be formed and placed, with the consent of the Natural History Society, in the Newcastle Museum."

"That the proposed publications be printed in a cheap form, and sold at a low rate."

C.

BOTANICAL SOCIETY OF LONDON.

Friday, 3rd March.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced: 'The Flora of Forfarshire,' by Mr. William Gardiner, presented by the author. 'Transactions of the Tyneside Naturalists' Field Club, Vol. i. Part 1,' presented by Mr. John Storey. Iceland plants from Mr. C. C. Babington. Mr. Thomas Turner, of Streatham Hill, Brixton Hill, and the Rev. William Marsden Hind, of Pulverbatch, Shrewsbury, were elected members. Specimens of the plants mentioned in Mr. Watson's paper on some of the plants distributed by the Society in 1848 (See Phytol. February, 1848) were exhibited. Also a specimen of *Caltha palustris*, sent by Mr. Watson, as one of the connecting links between that species and the *C. radicans*; having the leaves just intermediate between those of the two figures in 'English Botany,' but still more acutely crenate or dentate even than those of *C. radicans* are represented to be.—*G. E. D.*

Vegetation of the Organ Mountains.

(Extracted from Gardner's 'Travels in Brazil').

"IN order to present some general idea of the splendid scenery of the country, and the leading features of this part of Brazil, I will give an account of some of these excursions. There is a path by the side of the great aqueduct, which has always been the favorite resort of naturalists who have visited Rio; and there is certainly no walk near the city so fruitful either in insects or plants. The following notes were made on the return from my first visit along the whole length of the aqueduct. After reaching the head of the Laraujeiras valley,

which is about two miles in extent, the ascent becomes rather steep. At this time it was about 9 a.m., and the rays of the sun, proceeding from a cloudless sky, were very powerful; but a short distance brought us within the cool shade of the dense forest which skirts the sides of the Corcovado, and through which our path lay. In the valley we saw some very large trees of a thorny-stemmed Bombax, but they were then destitute both of leaves and flowers, nearly all the trees of this tribe being deciduous. There we also passed under the shade of a very large solitary tree, which overhangs the road, and is well known by the name of the Pao Grande. It is the Jequetibâ of the Brazilians, and the Couratari legalis of Martius. Considerably further up, and on the banks of a small stream that descends from the mountain, we found several curious Dorstenias, and many delicate species of ferns. We also added here to our collections fine specimens of the tree-fern (*Trichopteris excelsa*) which was the first of the kind I had yet seen. The forests here exhibited all the characteristics of tropical vegetation. The rich black soil, which has been forming for centuries in the broad ravines from the decay of leaves, &c., is covered with herbaceous ferns, Dorstenias, Heliconias, Bejonias, and other plants which love shade and humidity; while above these rise the tall and graceful tree-ferns, and the noble palms, the large leaves of which tremble in the slightest breeze. But it is the gigantic forest trees themselves which produce the strongest impression on the mind of a stranger. How I felt the truth of the observation of Humboldt, that when a traveller newly arrived from Europe penetrates for the first time into the forests of South America, Nature presents itself to him under such an unexpected aspect, that he can scarcely distinguish which most excites his admiration, the deep silence of those solitudes, the individual beauty and contrast of forms, or that vigour and freshness of vegetable life which characterize the climate of the tropics. What first claims attention is the great size of the trees, their thickness, and the height to which they rear their unbranched stems.

“Then, in place of the few mosses and lichens which cover the trunks and boughs of the forest trees of temperate climes, here they are bearded from the roots to the very extremities of the smallest branches, with ferns, Aroideæ, Tillandsias, Cacti, Orchideæ, Gesneriæ, and other epiphytous plants. Besides these, many of the large trunks are encircled with the twining stems of Bignonias, and shrubs of similar habit, the branches of which frequently become thick, and compress the tree so much that it perishes in the too close embrace.

Those climbers, again, which merely ascend the trunk, supporting themselves by their numerous small roots, often become detached after reaching the boughs, and where many of them exist, the stem presents the aspect of a large mast supported by its stays. These rope-like twiners and creeping plants, passing from tree to tree, descending from the branches to the ground, and ascending again to other boughs, intermingle themselves in a thousand ways, and render a passage through such parts of the forest both difficult and annoying." — p. 23.

"The Corcovado mountain offers a rich field to the botanist. I frequently visited the lower portions, but only once ascended to the summit. The ascent is from the N.W. side, and although rather steep in some places, may be ridden on horseback all the way up. Some of the trees on the lower parts of it are very large. The thick underwood consists of palms, Melastomaceæ, Myrtaceæ, tree-ferns, Crotons, &c.; and beneath these are many delicate herbaceous ferns, Dorstenias, Heliconias, and, in the more open places, a few large grasses. Towards the summit the trees are of much smaller growth, and shrubs belonging to the genus *Croton* are abundant, as well as a small kind of bamboo. The summit itself is a large mass of very coarse-grained granite. In the clefts of the rocks grow a few small kinds of orchidaceous plants, and a beautiful tuberous-rooted scarlet-flowered *Gesnera*. From this point a magnificent panoramic view of the bay, the city, and the surrounding country is obtained." — p. 28.

"The whole length of the road is through one dense forest, the magnificence of which cannot be imagined by these who have never seen it, nor penetrated into its recesses. Those remnants of the virgin forest which still stand in the vicinity of the capital, although they appear grand to the eye of a newly arrived European, become insignificant when compared with the mass of giant vegetation which clothes the sides of the Organ Mountains. So far as I have been able to determine, the largest forest trees consist of various species of palms, *Laurus*, *Ficus*, *Cassia*, *Bignonia*, *Solanum*, *Myrtaceæ*, and *Melastomaceæ*. In temperate climates natural forests are mostly composed of trees which grow gregariously. In those of tropical countries it is seldom that two trees of a kind are to be seen growing together, the variety of different species is so great. Many of the trees are of immense size, and have their trunks and branches covered with myriads of those plants which are usually called parasites, but are not so in reality, consisting of *Orchideæ*, *Bromeliaceæ*, ferns, *Peperomiæ*, &c., which derive their nourishment from the moisture of the bark and the earthy matter which has been formed from the decay

of mosses, &c. Many of the trees have their trunks encircled by twiners, the stems of which are often thicker than those they surround. This is particularly the case with a kind of wild fig, called by the Brazilians, Cipo Matador. It runs up the tree to which it has attached itself, and at the distance of about every ten feet throws out from each side a thick clasper, which curves round and closely entwines the other stem. As both the trees increase in size, the pressure ultimately becomes so great that the supporting one dies from the embrace of the parasite. There is another kind of wild fig-tree with an enormous height and thickness of stem, to which the English residents give the name of buttress-tree, from several large thin plates which stand out from the bottom of the trunk. They begin to jut out from the stem at the height of ten or twelve feet from the bottom, and gradually increase in breadth till they reach the ground, where they are connected with the large roots of the tree. At the surface of the ground these plates are often five feet broad, and throughout not more than a few inches thick. The various species of *Laurus* form fine trees; they flower in the months of April and May, at which season the atmosphere is loaded with the rich perfume of their small white blossoms. When their fruit is ripe it forms the principal food of the Jacutinga (*Penelope Jacutinga*, Spix), a fine large game bird. The large Cassiæ have a striking appearance when in flower; and, as an almost equal number of large trees of *Lasiandra Fontanesia*, and others of the *Melastoma* tribe are in bloom at the same time, the forests are then almost one mass of yellow and purple from the abundance of these flowers. Rising amid these, the pink-coloured flowers of the *Chorisia speciosa*, a kind of silk cotton-tree, can be easily distinguished. It is also a large tree, with a stem covered with strong prickles, from five to eight feet in circumference, unbranched to the height of thirty or forty feet. The branches then form a nearly hemispherical top, which, when covered with its thousands of beautiful large rose-coloured blossoms, has a striking effect when contrasted with the masses of green, yellow and purple of the surrounding trees. Many of these large trunks afford support to various species of climbing and twining shrubs, belonging to the natural orders Bignoniaceæ, Compositæ, Apocynæ and Leguminosæ, the stems of which frequently assume a very remarkable appearance. Several of them are often twisted together, and dangle from the branches of the trees, like large ropes, while others are flat and compressed, like belts: of the latter description I have met with some six inches broad, and not more than an inch thick. Two of the finest climbers are the beauti-

ful large trumpet-flowered *Solandra grandiflora*, which, diffusing itself among the largest trees of the forest, gives them a magnificence not their own; and a showy species of *Fuchsia* (*F. integrifolia*, Cambess.) which is very common, attaching itself to all kinds of trees, often reaching to the height of from sixty to one hundred feet, and then falling down in the most beautiful festoons. At the foot of the mountains the underwood principally consists of shrubs belonging to the natural orders Melastomaceæ, Myrtaceæ, Compositæ, Solanaceæ and Rubiaceæ, among which are many large species of herbaceous ferns and a few palms. About the middle palms and tree-ferns abound, some of the latter reaching to a height of not less than forty feet. These trees are so very unlike every other denizen of the forest, so strange in appearance, yet so graceful, that they have always attracted my attention more than any other, not even excepting the palms. At an elevation of about 2,000 feet, a large species of bamboo (*Bambusa Togoara*, Mart.) makes its appearance. The stems of this gigantic grass are often eighteen inches in circumference, and attain a height of from fifty to one hundred feet. They do not, however, grow perfectly upright, their tips forming a graceful curve downwards. Throughout the whole distance the path was lined on each side with the most beautiful herbaceous plants and delicate ferns.”—pp. 42-46.

Notice of ‘*The Cryptogamic Vasculares of Rhenish Prussia*. By PH. WIRTGEN. Bonn, 1847.’

THIS unpretending little pamphlet is a valuable and agreeable addition to the fern-literature of Europe: the species are enumerated, with brief characters and a copious list of localities to each, occasionally interspersed with remarks, some of which we shall extract.

Equisetum arvense.

———— *Telmateia*=fluviatile of Smith, Hooker, &c.

———— *sylvaticum*.

———— *umbrosum*=Drummondii of Hooker, &c.

———— *palustre*.

———— *limosum*.

———— *hyemale*.

———— *ramosum*.

Pilularia globulifera.

Lycopodium Selago.

Lycopodium annotinum.

———— *inundatum.*

———— *clavatum.*

———— *Chamæcyparissus.*—This plant has been described by several authors under the name of *L. complanatum*; from which the present plant was distinguished by A. Braun. M. Wirtgen remarks: “The true *L. complanatum* of Linneus, which is distinguished by dichotomous branches, lanceolate exterior and smaller subulate interior leaves, and several other characters, does not grow in the Rhine province. It appears to be a plant of eastern Germany.”—p. 10. We wish to refrain from expressing any opinion as to the validity of the characters by which this well-known plant is separated from the *Lycopodium complanatum* of Linneus, for which it has hitherto passed without a question.

Grammitis Ceterach.

Polypodium vulgare.—Of this species Wirtgen distinguishes four varieties, under the names of *auriculatum*, *serratum*, *crenatum*, and *oppositum*.

———— *Phegopteris.*

———— *Dryopteris.*

———— *Robertianum* of Hoffman = *calcareum* of Smith and Hooker: the restoration of the older name is highly to be commended.

Aspidium Lonchitis.

———— *aculeatum.*—All the kindred forms are unhesitatingly associated under this name.

Polystichum Thelypteris.

———— *Oreopteris.*

———— *Filix-mas.*

———— *cristatum* = the *cristatum* of Roth, &c., not of Willdenow; it is the *cristatum* of Linneus in part, and the *Callipteris* of Ehrhart.

———— *spinulosum* = *Aspidium spinulosum* of Hooker, and *Asp. dilatatum* of Smith: as the ferns comprised under this name have recently undergone investigation in this country, we shall quote M. Wirtgen’s remarks at length, and add a few observations of our own.

“No. 26. *Polystichum spinulosum*, De C. Spiney Pol. *Aspidium spinulosum*, Schk. In forests throughout the whole district, in shady and sunny, in damp and dry, places. Summer. Frond 1—1½ ft. high, mostly of a rather yellow green; commonly dies away in autumn.

“Var. β . dilatatum, *K.* *Polypodium dilatatum*, *Hoffm.* Frond 1—2 ft. high, lively green, bipinnate and pinnatifid, almost tripinnate, deltoid-ovate in its outline. With the species, especially in shady woods.

“1st remark.—The most widely different forms of this fern are found on the hill of Montabaurer, distant three hours’ journey from Coblenz, 1600 feet high, in the dukedom of Nassau, which affords an especially rich harvest in ferns, and the present species in great quantity on sunny and shady, stony and fertile, dry and boggy, ground. I usually found the variety at the end of October dead and black, while the species was still of a lively green or a yellowish green.

“2nd remark.—The species and the variety have been regarded by many authors as two distinct species; and they really appear so different, that when the variety is seen without its intermediate forms, it may well be taken for a distinct species; but on further research such a host of intermediate forms occur, that one is often at a loss to know to which of the two principal forms they should be referred. According to Schkuhr, Kaulfuss, Spenner, Wallroth, Genth, and others, *P. spinulosum* should possess a glandular, and *P. dilatatum* a smooth [indusium?]; which, on the contrary, is questioned by Lejeune and Courtois, Link, Meyer, Röper, and others, neither have I met with the glandular indusium in any of the forms. John Röper has most thoroughly investigated the history of this species in his excellent work ‘*Flora Mecklenburgs*,’ vol. i., pages 82—96, and, moreover, also unites with it *P. cristatum*, which I nevertheless was unable to confirm.

“He distinguishes—

“1. Principal or intermediate form: *Nephrodium* (*Polystichum*) *spinulosum* (true).

“2. Finely divided, or wood form: *Nephrodium* (*Polystichum*) *dilatatum*.

“3. Simplified or bog form: *N. cristatum*.

“3rd remark.—That excellent judge of German ferns, Professor A. Braun, of Freiburg, and after him Döll, in his valuable ‘*Rheinische Flora*’ (pp. 17—18), discriminate the following forms of this variable species:—

“a. *elevatum*, A. Br.—Rhizome prostrate, rather thin; stipes long, erect; axis nearly naked; frond small, barren towards the base, doubly pinnate and pinnatifid; the lower pinnæ distant, nearly as long as the following; pinnules short, with approximate, serrate, sharp-pointed, acuminate segments, whose teeth are somewhat curved up-

wards and inwards. *Aspidium spinulosum*, Swartz. In damp woods in low districts.

“b. *uliginosum*, A. Br.—Stipes rather short, with few, scattered, broadly ovate, short-pointed, brown-yellow scales; frond doubly pinnate, pinnatifid; pinnæ approximate, the inferior ones a little shorter than the following; teeth of the leaflets rather short, sharp-pointed, appressed (anliegend). (At Freiburg in the bog, with *Asp. cristatum*).

“c. *dilatatum* (Aspid. dilatatum).—Rhizome nearly erect, thick; frond fertile over the whole under-surface, curved back, dilated; stipes rather short, rather thickly clothed with ovate-lanceolate, acute scales, which are dark brown in the middle; frond fertile, nearly tripinnate, at the base often tripinnate-pinnatifid; pinnæ long, pointed, the lowest considerably shorter; pinnules lanceolate, with smaller, more distant segments, confluent at the base, more remote, and somewhat aculeate teeth, which finally become bent back with the margin. It grows in shady woods on the mountains and plains.

“d. *muticum*, A. Br.—Stipes clothed with broader, pale scales; pinnæ largest at the base and below the middle; segments of the pinnules confluent, and broad at the base, afterwards much contracted, linear, obtuse, inciso-serrate; sori nearly marginal, at the sinus between the segments or teeth. (At Freiburg).”

It will be perfectly evident to those who take an interest in this subject that the named varieties are distinguished by Braun with great botanical tact. We are perfectly familiar with three of these forms. *Elevatum* and *uliginosum* are combined by Roth, and subsequently by Newman, under the name of *spinosa*: *elevatum* generally grows in woods, *uliginosum* in marshes. No one in this country has hitherto admitted these to be ranked as varieties: *dilatatum* is the *dilatatum*, *spinulosum* and *dumetorum* of Smith, the *multiflora* of Roth and Newman. The fourth variety, *muticum*, is entirely unknown to us; the name implying the absence of the terminal spine which distinguishes the group might lead us to suspect that the *A. rigidum*, a fern so long and obstinately confounded with this group by English authors, was the form intended, but the marginal situation of the clusters of capsules does not favour such a suggestion, and almost induces us to suppose there is an European species of the genus yet undescribed. It must, however, be observed in favour of the suggestion that *rigidum* is absent from Wirtgen's list, although decidedly a native of the district.

Cystopteris fragilis.—None of the forms of this protean fern are raised to specific honours.

Asplenium Trichomanes.

Asplenium Filix-femina.—The three varieties so well known are described as below, but referred without hesitation to one species.

“29. *A. Filix-femina*.

“*α. molle. Athyr. molle, Roth.* Frond small, a foot high; pinnæ longish, incised, decurrent at the axis; segments usually with one tooth. In the Condethal at Wunningen, *Wirtgen*; Wiedbachthal, *Brahts*; Friesdorf, near Bonn, *Eberwein*.

“*β. ovatum. Athyr. ovatum, Roth.* Frond larger; pinnæ approximate, oval, cut, decurrent at the axis; segments mostly 2-3 dentate. Condethal and Belthal, at or near Wunningen, *Wirtgen*.

“*γ. elatum. Ath. elatum, Roth.* Frond 2—2½ ft. high; pinnæ distant, pinnatifid, very little, or not at all decurrent; segments 2-4 dentate. A beautiful and well-marked form. In fertile soil of shady alpine woods; common.”—p. 41.

Asplenium Breynii=*germanicum, Weiss, &c.*; *alternifolium* of most modern authors.

———— *Ruta-muraria.*

———— *Adiantum-nigrum*.—Pleasantly divided into three named varieties—*pinnatum, bipinnatum, tripinnatum.*

———— *septentrionale.*

Scolopendrium officinarum = *Scolopendrium vulgare* of authors.

Pteris aquilina.

Blechnum spicant.

Struthiopteris germanica.

Osmunda regalis.

Botrychium lunaria.

Ophioglossum vulgatum.

This list, which we may presume to be tolerably perfect, offers a few points for observation. Contrasting it with our own, it contains three species with which we are unacquainted, *Equisetum ramosum*, *Lycopodium Chamæcyparissus* and *Struthiopteris germanica*; the first of these may possibly prove identical with our *Equisetum variegatum*, the others are undoubtedly distinct. On the other hand, we have no less than sixteen species that are absent from M. Wirtgen's list, these are—

Equisetum variegatum

Adiantum Capillus-Veneris

Allsorus crispus

Woodsia Ilvensis

———— *alpina*

Lastræa rigida

Lastræa recurva

Asplenium lanceolatum

Asplenium marinum

———— *viride*

Trichomanes speciosum

Hymenophyllum tunbridgense

Hymenophyllum Wilsoni

Lycopodium selaginoides

Lycopodium alpinum

Isoetes lacustris

Equisetum variegatum and Lastræa rigida being subject to a doubt, as previously expressed.

M. Wirtgen observes that the entire number of species occurring in middle and northern Germany, from the Donou to the east and north sea, amounts to fifty-seven: for the complete Rhine Flora the following species may be added:—

Equisetum variegatum

Asplenium viride

———— trachyodon

Botrychium matricariæfolium

Adiantum Capillus-Veneris

———— rutæfolium

Allosorus crispus

Lycopodium alpinum

Polypodium alpestre

Selaginella spinulosa

Lastræa rigida

———— helvetica

In the fertile province of Silesia five other species occur:—

Cystopteris regia

Lycopodium complanatum

Woodsia hyperborea

and

Asplenium fissum

Salvinia natans

The whole of these are absent from the British Flora, unless the Low Layton plant is referrible to the first. The said plant illustrates the extreme tenacity with which ferns cling to a station in which they have been once established. In 1845, a gentleman wrote a note for publication in these pages, (Phytol. ii. 291) announcing that the plant “had been dead some years;” and adding, “By making this known you may save botanists a fruitless search, and the polite proprietor of the house will be relieved from many inquiries.” We have not the honour of knowing the writer, Mr. Frederick Barham, but we presume that he knew the locality; and although he is in error in stating the plant had been dead some years (it having been gathered every year), yet it is obvious that it was not sufficiently conspicuous for him to detect it when he visited the spot in August, 1845. Two months later, that is, in October, 1845, it was green and vigorous as ever.

K.

Further Remarks on Plants excluded from the Second Edition of the ‘London Catalogue.’ By F. P. PASCOE, Esq.

MR. SIDEBOTHAM having directed attention to the “Excluded Species” of the ‘London Catalogue’ in the last number of the ‘Phy-

tologist,' I am induced to offer a few additional remarks on the same subject. Probably very few will agree throughout in their views as to what are or are not "truly indigenous;" fewer still, as to the degree of naturalization which should entitle a species, known or suspected to have been introduced, to take its place in our lists. As far as I have had an opportunity of forming an opinion, I think the authors of the 'London Catalogue' would have been fully justified if their list of excluded species had been much more extensive than it is: such undoubted aliens as *Lilium Martagon*, *Impatiens fulva*, and some others, ought, as it seems to me, to be very widely distributed ere they are admitted even as naturalized species in any catalogue of British plants. On the other hand, there are in the excluded list one or two species for which I would claim a less dubious position; Mr. Sidebotham has already mentioned one of these, *Oxalis stricta*, and I shall only add, that in the orchards at Lariggan and the Minney near Penzance, where it occurs in tolerable abundance, it is known to have existed for more than eighty years, and, so far from receiving any encouragement, it is regularly weeded up by the occupiers of the property. *Iris tuberosa* is another plant which, whatever may have been its origin, has been established in its present localities, near Penzance, many years, and although I only contend for its being thoroughly naturalized there, it has, as far as the nature of its stations are concerned, much more the appearance of being indigenous than *Allium Babingtonii*, which in the 'general list' takes its place, an unquestioned native.

As the 'London Catalogue' bears evident marks of the anxiety of its authors to record everything, even to the "ambiguous and erroneous," I would call their attention to *Geranium striatum*, *L.*, which they have altogether omitted;* always found near gardens, and in small quantities, it is yet sufficiently naturalized, or apparently so, in this country to make it desirable that it should receive some notice in every work on British plants. In my earlier days it was long a sore puzzle; finding it in waste places with ordinary *weeds*, any doubts of its being otherwise than a true native never occurred to me.

Although not exactly to the point, I will not conclude without expressing my regret that the British Flora should now be regularly

* One of the authors (Mr. Hewett C. Watson) notices this plant in his 'Cybele Britannica;' the omission of it therefore in the 'Catalogue' must have been an oversight.

hampered with the plants of the Channel Islands; why not the whole British empire, or at least Heligoland and Gibraltar?

F. P. PASCOE.

Trewhiddle, near St. Austell,
March 17th, 1848.

[And Jamaica? I quite agree with my correspondent's view on this subject. The geographical boundaries of a Flora should be *natural*, not *political*.—*E. N.*]

Note on Datura Stramonium. By F. P. PASCOE, Esq.

IN the summer and autumn of 1846 after the removal of an old out-house, several plants of this species made their appearance on its site, as well as in an adjacent field, &c. It was perfectly new to the gardener, who had been here eighteen years. Although I took some trouble to scatter its seed, last year passed away and not a specimen was to be found. I believe that it is generally a very uncertain alien, at the best, in this country. In Cornwall it has been occasionally noticed in two or three other places.

F. P. PASCOE.

Trewhiddle, near St. Austell,
March 17th, 1848.

Notice of the 'London Journal of Botany,' Nos. 73 to 75, for January to March, 1848.

No 73. *Original Papers*: "On the Structure of Cruciferous Flowers;" by A. Moquin-Tandon and P. B. Webb. "Contributions to the Botany of South America;" by John Miers, Esq. "Characters of three new Australian Mosses;" by W. Wilson, Esq. *Botanical Information*: Dr. Thomson's 'Scientific Mission to Thibet.' Sendtner's 'Expedition into Bosnia.' Fendler's 'Journey to Santa Fè.' *Nelumbium Jamaicense.* *Notices of Books*: De Candolle's 'Prodromus Systematis Naturalis Regni Vegetabilis,' 11th volume or part. Schomburgk's 'History of Barbadoes.' Harvey's 'Nereis Australis; or Algæ of the Southern Ocean.' Hooker's 'Flora Antarctica.' Darlington's 'Agricultural Botany.' Rainey's 'Experimental Inquiry into the Cause of the Ascent and Descent of the Sap.' Mac Ivor's 'Hepaticæ Britannicæ.'

No. 74. *Original Papers*: "Contributions to the Botany of South America;" by John Miers, Esq. "Prodromus Monographiæ Ficuum;" by Prof. F. A. W. Miquel. "Contributions towards a Flora of Brazil;" by G. Gardner, Esq. "Brief characters of Aulacopilum;" by W. Wilson, Esq. "Further remarks on the Pollen-collectors of Campanula;" by W. Wilson, Esq. *Botanical Information*: Dr. Thomson's 'Scientific Mission to Thibet.' *Notices of Books*: Presl's 'Botanische Bermerkungen.' 'Botanical Labels for the Herbarium.' Gottsche, Lindenbergh, and Nees ab Esenbeck's 'Synopsis Hepaticarum.' De Candolle's 'Notices sur les Plantes rares cultivées dans le Jardin Botanique de Genève.' Schnizlein's 'Iconographia Familiarum Naturalium Regni Vegetabilis.' Dunal's 'Petit Bouquet Méditerranéen.'

No. 75. *Original Papers*: "Prodromus Monographiæ Ficuum;" by Prof. F. A. W. Miquel. "Contributions to the Flora of Guiana;" by George Bentham, Esq. "Notes and Observations on the Botany, Weather, &c., of the United States;" by Dr. W. A. Bromfield. *Botanical Information*: Borgeau's 'Plants of the Spanish Pyrenees.' 'Plants of Canara,' distributed by M. Hochstetter. Death of Dr. Thomas Taylor. Dr. Harvey's Appointment to the Chair of Botany in the Dublin Institution. *Notices of Books*: Gasparrini's 'Recherchi sulla Natura del Caprifici e del Fici,' &c.

As no Number of the 'London Journal of Botany' was published on the First of January, a report found ready credence that it had been discontinued for want of sufficient support, as happened at the same time with the 'Botanical Register.' We are happy to see that the report was only partially correct; Messrs. Reeve, Benham, and Reeve becoming its publishers (and, we presume, proprietors) in place of M. Baillière, in whose hands it had remained since the addition of the word "London" to its title. We should be glad to learn that its circulation increased with the change of publishers and a slight internal change of arrangement; though we fear this will not be the case to any really profitable extent. A journal which is devoted to a single department of science, and independently of its applications to the arts and professions of daily life, addresses only a very small section of the public. And if the plan of the journal be such as to render it necessary or interesting to only a sub-section of that small section, the proprietor must make up his mind to find few purchasers, and editor and contributors must be satisfied with few readers. Such we believe to be the present position of the 'London Journal of Botany.' The science of which it treats, when disconnected from the arts of

cultivation, as gardening and farming, attracts the attention of only a small portion of the community. And the staple contents of the 'London Journal,' over and above the disadvantages of disconnected publication and high price, are addressed almost exclusively to a mere fragment of the botanical portion of the community. A very restricted circulation is a natural consequence of this state of matters. Let us not be misunderstood to find fault with the 'London Journal' or its contents. The latter are good of their kind, the reviews of books excepted, and their kind itself is good and scientifically important; but they are very far from being matters of general interest to the botanical circles. And when we speak of the remunerative circulation of a periodical, the question resolves itself into one of 'how many are induced to buy?'

In the January No. of the 'Phytologist' we used the freedom to suggest a better arrangement of the 'Contents' of the 'London Journal of Botany;' and we are pleased to find our hints acted upon in that respect. It may be much less easy to give that wider interest to the contents themselves, which would ensure the wider circulation so much to be desired for the periodical; and probably the proprietors could not venture on the experiment of bringing the price and contents nearer to the usual proportion. Seven and sixpence for a hundred and fifty-four pages is a high price now-a-days in the book-market. But we believe that if the size of each half-crown Number were doubled, the increase in this respect would add extremely few to the list of purchasers, unless the additional contents were of a different kind from those which constitute the bulk of the 'London Journal.'

Judging by the three Nos. now before us, the periodical is still to consist principally of lists and descriptions of South American plants, by very competent and eminent botanists; notes and letters of botanical travellers; eulogies of books, perhaps hardly looked into beyond their title-pages and tables of contents; miscellaneous information about collectors, &c., &c. By-the-bye, we must make an exception to the "eulogies" of books, when looking into the Number for February. The first of the "Notices of Books" is one of Presl's 'Botanische Bemerkungen,' which is pretty smartly censured; the reviewer's pen, in this instance, being apparently dictated to by a different head from that which usually allows its good-nature and kind encouragement of authors to run too closely on indiscriminate commendation, which renders the laudation valueless.

There is nothing on English Botany in the three Nos. before us. Perhaps the paper of greatest general interest is that on the

structure of cruciferous flowers. Considerable difference of opinion (or, rather, explanation) has prevailed respecting the floral structure in the order of Cruciferae. Moquin-Tandon and Webb, after giving their explanations in detail, sum up their views thus: "The floral type of Cruciferae is quaternary. The calyx is composed of 4 leaflets, the corolla of 4 petals, the receptacle has 4 staminiferous glands, the andrœceum 4 stamens, the gynœceum 4 pistils, the fruit 4 carpidia. These verticils alternate regularly. Two stamens in the habitual state of the flower have been transformed into two pair by multiplication (*dédoublement*), and two pistils have disappeared by abortion: hence the andrœceum has two component parts more than it should have; the gynœceum two less. The four staminiferous glands are more or less irregular or incomplete, and are found above, below, or by the side of the filaments. Their volume has caused a change in the position of two stamens and of two calycinal leaves, which makes the andrœceum and the calyx appear biverticillate." This view differs materially from that given in Lindley's 'Vegetable Kingdom.' Such differences, however, are truly only differences of words, or, at least, of artificial technicalities: they are not realities in nature; although most systematic botanists evidently believe that they are making profound researches into nature, while they are simply showing how far the natural facts accord with or differ from their own technical inventions and conventional rules; such inventions and rules being, by a fiction of the imagination, regarded as discovered laws of nature.

The letters of Dr. Thomson are well deserving the attention of those botanists who interest themselves with the geographical relations of plants. The observations of a good and zealous botanist, travelling from India to the lofty lands of central Asia, must possess no little claim to attention; and all the more where they correct false information previously put forth by other parties. We have always felt convinced that Dr. Royle's writings, bearing on the geographical botany of Asia, were wanting in that degree of exactness which is necessary for scientific reliance, and yet contradiction or correction seemed out of reach. The following incidental statement in one of Dr. Thomson's letters throws some light on the matter, by showing that Dr. Royle's facts have been erroneously reported: "Royle publishes many plants from Kunawur; but the localities are incorrectly given in his book, owing, apparently, to the native collectors having always stated the name of the nearest town or halting place, instead of the mountain where the specimens were gathered. Thus Lippa, Soongnum, Rogee, and Pan-

gee, are all at elevations of from 8 to 9,000 feet; while it was at 12 to 15,000 feet that those northern forms of plants were found, for which those much lower spots are erroneously cited."

C.

Note on the Death of Mr. William Jackson.

By GEORGE LAWSON, Esq.

IT is with feelings of a painful kind that I communicate to your readers the mournful tidings of the death of Mr. William Jackson, a most devoted and zealous naturalist, and a contributor to your pages. He died here on the morning of Sabbath the 12th current, in the twenty-seventh year of his age, leaving many loving relations and a numerous circle of admiring friends, and above all a sorrowful widow and two little twin children, to lament his loss. Mr. Jackson was an enthusiastic field naturalist, and devoted attention to almost every department of Natural History. His earlier years were principally occupied in gaining an acquaintance with Botany, and in 1840 he was elected an associate member of the Botanical Society of Edinburgh. During the past few years, however, he has been much engaged in the study of Zoology, although the results of his labours are unpublished. Mr. Jackson's father was likewise a zealous and persevering naturalist, and for many years acted as Curator of the Watt Institution Museum, and since the decease of his father he has occupied that situation, and discharged the duties of the office in a way highly creditable to himself and gratifying to the directors and members of the Institution. He has likewise been chosen at two elections as Treasurer of the Dundee Naturalists' Association, and so long as he was at all able he did everything in his power to forward the interests of that Association, and to spread a taste for Natural History in local circles. Mr. Jackson loved to share with his fellow-men around him his own pure intellectual enjoyments, and was ever willing to communicate instruction to those uninitiated in the mysteries of Natural History. In private character he was a most amiable man, and justly esteemed by all who shared his acquaintance.

GEORGE LAWSON.

Dundee, March 25, 1848.

Note on the Death of Mr. E. J. Quekett.

WE have been reminded by Mr. Bowerbank, in his address to the Microscopical Society at the Anniversary Meeting in February last, of a serious omission in not having previously noticed the death of Mr. Quekett, a talented botanist, and a contributor to the pages of this journal. Mr. Bowerbank alludes to our deceased friend in nearly the following terms, and we beg sincerely to join in the sentiments which that gentleman has so ably expressed.

“Mr. Quekett was born at Langport, Somersetshire, in September, 1808; and in September, 1828, he commenced his attendance on medical lectures at University College, London, and pursued his studies with such assiduity that he gained a gold medal in the class of anatomy and physiology, another in that of practical anatomy, and a silver medal in that of chemistry, besides an honorary certificate in every class he attended. In 1829 he passed his examination as Licentiate of the Society of Apothecaries, and in 1830 obtained his diploma as a Member of the Royal College of Surgeons of England. He subsequently commenced the practice of his profession in Wellclose Square, and for several years held the appointment of Surgeon to the Tower Hamlets’ Dispensary. In 1835 he was appointed Lecturer on Botany in the London Hospital Medical School, which office he continued to hold to the time of his death. He was a Fellow and one of the Council of the Linnean Society, and a contributor to its Transactions; besides which he published various papers in the ‘London Physiological Journal,’ the ‘London Medical Gazette,’ and the ‘Pharmaceutical Journal;’ and to our own Transactions, as you are aware, he was a liberal and highly valued contributor. He died at his house in Wellclose Square, on Monday, the 28th of last June, in the 39th year of his age, and will long be held in remembrance by all who had the pleasure of his acquaintance, for the unaffected amiability of his disposition and the kindness and courtesy of his manners.”

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, March 9th, 1848.—The Rev. Dr. Fleming, President, in the chair.

A copy of the 'Transactions of the Berwickshire Naturalists' Club' was presented from Dr. George Johnstone.

The following communications were read:—

1. Short notice of the Geographical Distribution of Species in the Braemar District, by Professor Balfour. In this paper Dr. Balfour concluded his remarks on his Excursion to Braemar, &c., by noticing the geographical distribution of the plants as regards soil and altitude; and illustrated his observations by a series of specimens so arranged as to exhibit, at one view, the plants found at various elevations from the level of the sea to the summit of Ben na Muich Dhu.

The phanerogamous plants which attained the highest elevation were *Luzula arcuata* and *spicata*, *Juncus trifidus*, *Carex leporina*, *vaginata*, and *rigida*, *Silene acaulis*, *Salix herbacea*, *Empetrum nigrum*, *Festuca ovina*, var. *vivipara*, *Aira cæspitosa*, var. *vivipara* (alpine form), and *Azalea procumbens*.

In the districts visited, the greater number of rare species were associated with moist, crumbling, micaceous rocks, such as gneiss and mica-slate,—the granitic rocks presenting large tracts of dry, stony, unproductive soil. Some species seem to be confined to peculiar rocks,—thus *Lychnis alpina* has been found only on serpentine; and the rock on which *Oxytropis campestris* grows appears to be different from those in the immediate vicinity. *Luzula arcuata* seems to prefer granite.

2. List of Algæ found on the West Coast of Scotland, with remarks, by the Rev. D. Landsborough. In this communication the author enumerated the various species of Algæ found on the coast of Ayrshire, the Island of Arran, &c., and made remarks on their comparative rarity. Among some of the more interesting species noticed were *Cystoseira ericoides*, *Asperococcus Turneri*, *Gloiosiphonia capillaris*, remarkable for the fine crimson hue which it assumes when exposed to the air, *Polysiphonia parasitica* and *formosa*, *Ceramium Deslongchampsii*, *acanthonotum*, *echinatum*, *Griffithsia corallina*, *Oscillatoria thermalis*, *Petalonema alatum*, found by Professor Balfour on Goatfell, in Arran, *Batrachospermum moniliforme* and *alatum*, &c. Beautifully prepared specimens, from Mr. Landsborough's collection, were shown by Dr. Fleming.

3. Notes of Diatomaceæ found in the Stomachs of certain Mollusca, by Dr. Dickie, King's College, Aberdeen. In this paper the author enumerated fifteen Diatomaceæ found in the stomachs of different species of *Ascidia*, many of them having been found in a living state. He also mentioned several species which had been found in the

stomachs of the freshwater mussel (*Mya margaritifera*) in the Dee, about eighteen miles inland.

4. Notice of a New Species of *Spiridens*, and descriptions of two New Species of Ferns from Tahiti, by Dr. Greville. This beautiful moss, of which only one other species was hitherto known, has been named *Spiridens Balfouriana* by Dr. Greville. It was sent to the Society by Dr. Sibbald, H.M.S. *Grampus*, from Tahiti. The ferns, which have been named *Oleandra Sibbaldii*, *Grev.*, and *Grammitis blechnoides*, *Grev.*, were likewise sent from Tahiti, by Dr. Sibbald. Drawings were exhibited to the meeting.

Dr. Balfour exhibited beautiful specimens of tussac grass, in fine flower, from the Island of Lewis.

Dr. Dickie sent notice of the discovery of *Diphyscium foliosum* and *Buxbaumia aphylla*, in Aberdeenshire, by Mr. Alex. Cruikshanks—the former 40 miles inland, and 1,400 feet above the sea; the latter at an elevation of 800 feet.

Alex. Donkin, Esq., 11, Norton Place, was elected an ordinary fellow; and Mr. D. Boyle, Geelong, Australia, was admitted an associate of the Society.

The anniversary supper afterwards took place in the Café Royal—the President in the chair; Dr. Balfour, croupier.—*W. W. E.*

“*Description of a new British Mould.* By GEORGE JOHNSTON, M.D., &c.”

(Extracted from the ‘Proceedings of the Berwickshire Natural History Society.’)

“I AM willing to believe, with my Lord Bacon, that Mould ‘is something between putrescence and a plant.’ It settles a much mooted point as well as any other theory has yet done. Organic substance, in a state of decay, is mould’s fruitful matrix,—life from death,—the ever-yearning change from a worse to a better condition; for life, even in this its lowest state, is better certainly than sad corruption. And how beautiful are many moulds, when, with the microscope, we discover Nature’s handicraft in them to the eye of sense! We can scarcely but believe that they have a sort of enjoyment in their life, and in the evolution of their symmetrical figures. One sort is now vigorous and abundant on some plants in my little ‘green-house,’ where it is as noxious as the green-fly or *Aphis*; and it is

rather singular that the species has not been yet recorded as a British production. I have the high authority of the Rev. M. J. Berkeley for this fact, who informs me that our mould is the *Botrytis umbellata** of De Candolle.

“Botrytis umbellata.—On a flat and smooth leaf, the decumbent filaments of this mould form a cobweb-like mycelium, but on leaves with an uneven surface, and on the stalks of herbs, the mycelium is so filamentous and thin as to be scarcely perceptible; while the erect filaments are so numerous as to render the surface downy or hirsute. The decumbent filaments are also slenderer than the others, but there is no difference in their structure; they are smooth hyaline membranous tubes, jointed at distant intervals, the joints alternately swollen and constricted, but not regularly so, and when moistened with water, the whole tube becomes swollen, tense, and cylindrical. The erect filaments are two lines in height, of a grey or cinereous colour, with a hoary sporuliferous head; they are sparingly and irregularly branched, and at the top four or five short divergent branchlets form a sort of imperfect umbel, collecting, as it were, the sporules into a round heap or summit. The main branches are either divergent or dichotomous; and many of the filaments are quite simple. The sporules are ovate or elliptical, often marked with a septum, sometimes transversely, and in others in a longitudinal direction; and this septum disappears when the sporules are moistened. The number of sporules is incalculable; they fall from the head, and are found adherent to every fibre of the plant; and when this is shaken, they fly abroad in a little cloud.

“My friend Mr. Bowerbank examined this mould with the microscope. When highly magnified, many of the main filaments exhibited slight protuberances, which were supposed to be incipient branches; these were sometimes opposed to each other, and sometimes they were not quite in opposition. The sporules varied considerably in size, and were ovate or elliptical. Placed in water between glasses, after a lapse of two days it was found that most of the sporules had germinated, each emitting a single filament, which was sparingly and irregularly branched, and contained some very minute granules.

“January 6th, 1847.”

* Lam. et De Cand. Fl. Franç. ii. 71. Duby, Bot. Gall. ii. 921.”

Notice of 'Opuscula omnia Botanica Thomæ Johnsoni, Pharmaceuticæ Societatis Londinensis Socii. Nuperrime edita à T. S. Ralph, e Collegio Regali Chirurgorum Angliæ, et Societate Linneana Lond. Londini: Sumptibus Guliel. Pamplin. M.DCCC.XLVII.'

SOME six or eight pages in Pulteney's 'Sketches of the Progress of Botany,' contain the substance of all that seems to be known with any degree of certainty respecting one who, in his twofold capacity, is said by Wood to have been in his day "no less eminent in the garrison for his valour and conduct as a soldier, than famous through the kingdom for his excellency as an herbalist and physician." This was Thomas Johnson, the learned editor of Gerarde's 'Herbal,' which was so greatly improved by his editorial labours as to have elicited from Haller the well-deserved encomium—"dignum opus, et totius rei herbariæ eo ævo notæ, compendium."

Johnson was a native of Selby, in Yorkshire, and educated as an apothecary. He had a shop on Snow Hill, London, "where," says Wood, as quoted by Pulteney, "by his unwearied pains, advanced with good natural parts, he attained to be the best herbalist of his age in England."

Johnson made his first appearance as an author in 1629, when he published his 'Iter in Agrum Cantianum,' and 'Ericetum Hamstedianum.' Pulteney says that he never saw either of these catalogues, and does not appear to have been aware that they were followed, in 1632, by two much more extensive lists of plants collected in the county of Kent and on Hampstead Heath and its vicinity in the latter year; since in the only place where they are mentioned in his sketch of Johnson, he assigns the date of 1629 to the 'Iter Cantianum,' and that of 1632 to the 'Ericetum Hamstedianum.'

These tracts have for many years been extremely rare; and although modern botanists may perhaps be disposed to look upon them as possessing but little scientific value, they are, to say the least, exceedingly interesting as being the first local catalogues of British plants ever published in England; and we cannot but express our gratitude to the spirited projector and publisher of the elegant reprint before us, for enabling the British botanist to compare these the earliest records of botanical research with the present enlarged enumerations of the plants of our island.

The first tract in the volume has for its title, 'Iter Plantarum Investigationis ergo susceptum, a Decem Sociis, in Agrum Cantianum,

Anno Domini 1629, Julii 13.' And a right pleasant description of the journey is given. The ten companions, we are told, were Jonas Styles, William Broad, John Buggs, Leonard Buckner, Job Weale, Robert Larking, Thomas Wallis, two Edward Brownes (one of whom was servant to William Broad), and Johnson himself; who tells us that for some few years past it had been the truly laudable custom for certain lovers of Botany to go out of town two or three times a year for the purpose of collecting plants; and that early on the morning of the 13th of July, 1629, the above-named persons met at St. Paul's Cathedral, whence they went down to the river side, and entered two boats in order to proceed to Gravesend. Scarcely, however, had they left the shore, when

"Eripiunt subito nubes cœlumq. diemq.
Nostrorum ex oculis : ponto nox incubat atra.
 Intonuere Poli, et crebris micat ignibus æther :
 Præsentemq. *nobis* intentant omnia mortem."*

This tempest so terrified Buckner, Buggs, Weale, and Larking, that they put in at Greenwich, there to refresh themselves after their fright. "But we," says the more heroic Johnson, "without delay proceeded onward to Gravesend, whence, after breakfast, having left a letter for our absent friends, in order to let them know where we intended to pass the night, we took the accustomed route to Rochester, and found the following plants." Here follows a list of upwards of a hundred; none of them rare.

On reaching Rochester they put up at the sign of the Bull, where they were shortly joined by the friends they had left at Greenwich, who, the thunder and rain having ceased, had again committed themselves to the mercy of the waves; but the tide failing them, they left their boat at Erith, and walked to Gravesend, where they received the epistle left by the party who had preceded them; and mounting some horses rode on to Rochester, where they all joyfully supped together after the fatigues of the day.

* Virgil, *Æn.* i. 92 : thus Englished by Dryden :

"Sable night involves the skies;
 And heaven itself is ravished from their eyes.
 Loud peals of thunder from the poles ensue,
 Then flashing fires the transient light renew :
 The face of things a frightful image bears,
 And present death in various forms appears."

The next morning the party walked to Chatham, where they went on board the Prince Royal man-of-war, which surpassed the vessels by which she was surrounded,

“Quantum lenta solent inter viburna cupressi.”

The inspection of this vessel seems to have afforded the party the greatest pleasure, since Johnson tells us that everything he saw was so far beyond his expectations, that he would not dare to attempt a description, nor, if he dared, would he be able to give it.

In the Isle of Sheppey they met with an adventure. The party slept at Queenborough; and as they were preparing to start in the morning, they were waited upon by a person who informed them that the Prefect of the place (called the Mayor) wished to have a word with three or four of their number. To this, says Johnson, we assented, and proceeded to his house, where, salutations having been exchanged, the Mayor made a speech to the effect, that ancient kings of England having been pleased to confer upon that town certain great privileges, in order that the little island might be the better preserved from damage; it is therefore my duty, continued his worship, being responsible for the public safety of this place, to demand the purpose of your coming to this Island. Not that there is anything in your appearance calculated to excite suspicion in the smallest degree, but it is against the ancient laws of this place to allow so many men to remain here without knowing what they are up to. Explain therefore, in a friendly way, the purport of your visit. Then John Buggs, to whom the office was delegated, briefly informed his worship, although he said he did not think he had anything to tell worth the notice of so great a man, that he and his friends were students of Medicine and the *Materia Medica*; that they had come for the purpose of seeing what rare plants were growing in the Island; and that with no other view had they undertaken a pedestrian journey to such a distance from London. But Mr. Styles, with admirable tact, after confirming what had before been stated, added that independently of that cause for their visit, the pleasure of seeing so eminent a man as the Mayor would of itself have been a sufficient inducement for their coming, especially as he was known to be so well versed in nautical affairs, he being a captain in the Royal Navy. And so the Prefect, being fully satisfied by these and similar explanations, after a short conversation with the party upon medical and naval matters, treated his visitors to some of his best ale, in which he courteously drank to their health, and they, duly impressed with a sense of his condescen-

sion, after thanking him for his hospitality, left the house and proceeded to the Castle, where our loyal author was thrown into an ecstasy by the sight of the royal insignia of the never-sufficiently-to-be-praised Queen Elizabeth; and quotes some Latin verses of a highly laudatory character thereto appended. On the topmost height of the castle was gathered *Asplenium Ruta-muraria*; but this does not seem to have afforded so much pleasure as the sight of the royal arms below.

A doleful account is given of the sufferings of the party in *Greane* Isle, where, although their path lay alongside the river, they, Tantalus-like, experienced all the horrors of thirst, the water, though abundant, being *salt*; by the pangs of hunger they were equally afflicted in the midst of that inhospitable desert, where no house was visible, and where none of the usual indications of the propinquity of human habitations, such as the curling smoke delighting the eyes of the way-worn traveller, and the barking of dogs saluting his ears—none of these welcome sights and sounds were there to raise their drooping spirits. Having at length escaped from their difficulties, they arrived at the village of Stoke, completely tired out. There, having despatched their dinner, and all the party being knocked up except Johnson and Styles, they were by the latter committed to the care of a wagoner, who gave them a ride in his wagon towards Rochester, and the two more enduring friends walked on from Stoke by Cowling towards Cliffe, collecting many plants by the way.

From Cliffe the two companions, having been rejoined at Gravesend by Wallis, Buckner, and Weale, proceeded to Erith, where, taking boat, they on their passage homeward saw three East Indiamen returning from a voyage; one of these they boarded, and Buckner received a cocoa-nut and other things as presents. On reaching London they found their missing companions, and made arrangements for visiting Hampstead Heath on the 1st of August following.

A good number of plants was collected in the trip, but none which would now be looked upon as rare.

On the morning of the 1st of August, seven of the ten who had agreed to go to Hampstead Heath (Buggs, Weale, and Wallis being absent) met at the appointed place; the places of the missing three being supplied by John Sotheran, John Marriott, and Thomas Crosse. Not deterred by the threatening aspect of the skies, but considering that it would be disgraceful in those who had borne greater evils to yield to lighter ones, they left the city and held their way to Kentish Town; which they had scarcely left ere a heavy shower drove them

to seek shelter at Highgate. The rain had no sooner ceased, than they entered the wood, and found several plants (the names of which are here recorded) in addition to those observed in a previous journey here referred to, but which has perhaps never been published. This portion of the author's labours occupies but two pages, and concludes with a short paragraph relative to the results of the year's explorations, and the promise that these results are but the prelude to what is to be done in years to come—"quibus propitius sit Deus. *Amen.*"

The second tract here reprinted bears the following title: '*Descriptio Itineris Plantarum Investigationis ergo susceptum, in Agrum Cantianum Anno Dom. 1632; et Enumeratio Plantarum in Ericeto Hampstediano locisq. vicinis Crescentium.*' It is of a much more ambitious character than the preceding, since it occupies 48 pages, is preceded by a Dedication to the Master, Wardens, and Assistants of the Apothecaries' Company, and an Address to the friendly reader; besides being illustrated by five figures of plants. This journey was commenced on the 1st of August, 1632, by the wish and under the auspices of Thomas Hickes, the Warden of the Company, who accompanied the party in their peregrinations. They sailed down the river to Margate, and in the Isle of Thanet found upwards of sixty fresh plants. On the way to Nash upwards of sixty others were observed; and more than seventy new ones between that place and Sandwich, where, in the shop of Charles Anatus, a medical man, they were shown the remains of a serpent, fifteen feet long, and thicker than the arm. This wonderful animal was supposed to be a veritable *sea-serpent*; it having been captured by two men among the sand-hills on the sea-shore, being first despatched by small shot fired into its head. It had evidently sought this spot for the sake of preying upon the rabbits, which there exist in great numbers, for two of these animals were taken from its stomach. The men, having killed the beast, took it to our friend Charles Anatus, who purchased it of them, and removing the flesh, stuffed the skin with hay, and preserved it as a thing worthy of all consideration. So far Thomas Johnson upon an English sea-serpent.

About a hundred plants were collected between Sandwich and Canterbury, which city they reached towards sun-set, and immediately went to the Cathedral, wherewith the party were much gratified. The next day being Sunday, was passed in quiet and divine worship; but the following morning, girding themselves to their work, they proceeded to Faversham. From this place the party journeyed on

towards Gravesend through Sittingbourne and Rochester: and from Gravesend they safely returned to London.

In the following year Johnson published his edition of Gerarde: we may here quote the following passage from Pulteney, as showing Johnson's part in this great work, in which his botanical excursions were no doubt of great assistance.

"After what has been said of the plan, as it stands in Gerarde, it remains only to show briefly what Johnson has done. In about twelve pages, he has prefixed a concise, candid, and judicious account of the most material writers on the subject, from the earliest ages to the time in which he wrote; concluding with a particular account of his own work, from its origin in Dr. Priest's translation. After this follows a table, pointing out, with great precision, all his additions; by which we learn, that he enriched the work with more than eight hundred plants not in Gerarde, and upwards of seven hundred figures, besides innumerable corrections. By procuring the same cuts that Gerarde used (to which collection a considerable accession had been made), and by having some new blocks cut, his work contained a greater number of figures than any Herbal extant; the whole amounting to 2717. Another edition appeared in 1636."

In 1634 Johnson published his '*Mercurius Botanicus. Sive Plantarum gratiâ suscepti Itineris, Anno M.DC.XXXIV. Descriptio. Cum Earum Nominibus Latinis et Anglicis, &c.*' This was an 8vo of 48 pages, which is here reprinted line for line and page for page, as is likewise the case with the other tracts in the volume.

"It is dedicated," says Pulteney, "to Sir Theodore Mayerne, and others of the College, in his own, and the names of his associates in the excursion, who were all of the Company of the Apothecaries. It was the result of a journey, through Oxford, to Bath and Bristol, and back by Southampton, the Isle of Wight, and Guildford, made with the professed design to investigate rare plants. He has described, in not inelegant Latin, their route, which took up only twelve days, and the agreeable reception they met with among their acquaintance.* We meet with a list of exotics, amounting to 117, cultivated by Mr. George Gibbs, a surgeon at Bath, who had made a voyage to Virginia, from whence he brought many new plants; which, as it exhibits the advanced state of gardening in this country at that time, is now a matter of curiosity.

* This observation is equally applicable to the Kentish journeys, in which the party were treated with the greatest hospitality.

“The plants of spontaneous growth enumerated in this short tour, varieties being excluded, exceed six hundred, which, at a time when the Cryptogamia were scarcely noticed, and in the season when neither the very early nor late plants could be seen, is no inconsiderable number. In this catalogue are several not discovered in England before. With this tour Johnson gave his small tract, ‘De Thermis Bathonicis, sive earum Descriptio, Vires, Utendi Tempus, Modus, &c.’ There are three small plans of the baths, and one of the city, which seem to be copied from Speed’s map. These are now pleasing curiosities to the lovers of antiquity, and to all who contemplate the astonishing increase of the city since that time.”*

In 1641 appeared ‘*Mercurii Botanici pars altera, sive Plantarum gratiâ suscepti Itineris in Cambriam sive Walliam Descriptio, &c.*’ This is dedicated to Thomas Glynn, of Glynn Lhivona, who hospitably entertained Johnson and his friends at his house. The tract gives a pleasant account of the journey through Wales, with a catalogue of the plants met with there and in other places by Johnson and other botanists. In the introductory observations are answered the objections of those who do not recognise the utility of botanical studies; and a hope is expressed that the tract will not be read except by such as are disposed to be pleased with it; “namque benevolis non malevolis hæc scripta sunt.”

The party, consisting of Johnson, Paul Sone, and Edward Morgan, left London on the 22nd of July, 1639, travelling by Aylesbury, Stratford-on-Avon, Bilsley, Henley-in-Arden, Birmingham (*Bremicham*), Wolverhampton, Newport, Chester, and Stockport, where they met with sorry treatment, leaving the following lines written upon the wall of the bed-room, as a farewell token:—

“Si mores cupias venustiores,
Si lectum placidum, dapes salubres,
Si sumptum modicum, hospitem facetum,
Ancillam nitidam, impigrum ministrum,
Huc diverte, Viator, dolebis.
O Domina dignas, forma et fætore ministras!
Stock-portæ, si cui sordida grata, cubet.”

Entering Wales by Flint, the travellers passed through Bangor and Caernarvon to Snowdon, being, according to Pulteney, if not the first, at least “among the earliest botanists who visited Wales and Snow-

* Fac similes are given in the reprint.

don, with the sole intention of discovering the rarities of that country in the vegetable kingdom."

This was probably the last of Johnson's publications, for his death occurred in 1644, and in the few remaining years of his life he could have had but little leisure for botanical pursuits, as he seems then to have laid by the pen for the sword. The following paragraphs, relating to the close of his career, we quote from Pulteney.

"In the civil wars, his zeal for the royal cause led him into the army, in which he greatly distinguished himself; and the University of Oxford, in consideration of his merit and learning, added to that of his loyalty, conferred upon him the degree of Doctor of Physic, May 9, 1643.

"In the army, he had the rank of lieutenant-colonel to Sir Marmaduke Rawdon, governor of Basinghouse. Mr. Granger informs us, that 'he set fire to the Grange, near that fortress, which consisted of twenty houses, and killed and burnt about three hundred of Sir William Waller's men, wounded five hundred more, and took arms, ammunition, and provisions from the enemy.' Wood adds, 'that going with a party on the 14th of September, 1644, to succour certain of the forces belonging to that house, which went to the town of Basing to fetch provisions thence, but beaten back by the enemy, headed by that notorious rebel, Colonel Richard Norton, he received a shot in the shoulder, of which he died in a fortnight after. At which time his worth did justly challenge funeral tears; being then no less eminent in the garison for his valour and conduct as a soldier, than famous throughout the kingdom for his excellency as a herbalist and physician.'"

Johnson's age at the time of his death is not precisely known: Pulteney supposes him to have hardly reached the meridian of life, from his not being mentioned in Lobel's '*Adversaria*,' printed in 1605. However this may have been, his industry and learning are sufficiently testified in the Herbal and his other works which have reached us; and we cannot but feel grateful to the editor and proprietor of the work before us for having contributed to the rescuing from oblivion the memory of a man to whom British Botany has been so much indebted.

It is truly gratifying to see in these time-honoured Itineraries, that there is abundant truth as well as wisdom in the profound aphorism which declares that "human nature remains the same in all ages:" and in one important particular at least we presently hope to show that this is the case. The remark has frequently been made, and

sometimes by way of reproach, too, that naturalists, and out-o'-door naturalists more especially, are somewhat prone to attach undue importance to *creature comforts*. Now we hold that a *proper* attention to the wants and wishes of the outer man, is in no wise derogatory to the character of a naturalist, or incompatible with the pursuit of knowledge, whether in the closet or the field. For there is another old saw worthy to be placed alongside the one quoted above, which says that "the horse which goes *well* in one path, will go at least *tolerably* in all:" whence we would infer that he who most admires the beauty of natural objects *in puris naturalibus*—that is to say, *uncooked*, can scarcely fail to appreciate them equally after they have been subjected to the mysteries of the culinary art. This, to some, may appear to partake of the figure of speech termed a *non sequitur*, but it is true, notwithstanding; as will readily be granted by all who, like Johnson and his unlucky companions in *Greane Isle*, have felt the pangs of hunger and thirst beneath the summer's sun. To them, how delicious the association of ideas awakened perhaps by the unexpected apparition of a plant used *in re culinaria*! Of Lady Scott it is recorded, that whilst walking with her husband

"Abroad in the meadows to see the young lambs,"

and Sir Walter happening to make the remark that these little animals are very interesting creatures, her ladyship replied "Yes; *with mint sauce*!" Now, as the converse to this, let us suppose a botanist placed in a similarly interesting position to that of our old friends in *Greane Isle*; and let us also suppose him to come suddenly upon a patch of some species of *Mentha*; is it too much to believe that his weary and fainting spirit would be refreshed by visions of *roast lamb* with mint sauce? In like manner would *Thymus* suggest ideas of roast veal well stuffed; and a field of barley conjure up mental pictures of the foaming tankard of ale, or the wee drap o' mountain dew, bright and sparkling as the gems which deck the ebon brow of night. So that if he agree with those metaphysicians who hold that there is nothing *material* in the objects which surround us, but that like Macbeth's air-drawn dagger they are all nothing more than mentally daguerreotyped ideas, the naturalist in the pursuit of knowledge under difficulties has but to follow the advice of Erasmus to Sir Thomas More, when the learned Dutchman forgot to return the horse he had borrowed—he has but to *believe* that all the good things he thinks of are before him, and then he may *fa' tu an' ate* to his stomach's content, finishing off with the produce of the choicest vin-

tages ever matured by the fervid suns of the glowing South. But, be it remembered, that the botanist thus depending on his wits for a dinner, might possibly find himself *in a fix*, unless they were somewhat sharper than those of the man of whom Wordsworth sings in the well-known lines,

“ A primrose by the river’s brim,
A yellow primrose is to him,
And it is *nothing more* ! ”

This being the case, we are by no means disposed to quarrel with the records of gustatory localities and proceedings frequently introduced into the accounts of botanical excursions, particularly those of our good friends in the North. We especially honour old Johnson for not thinking it beneath the dignity of a man of his standing to inform us that he and his friends dined at Rochester, merrily supped together at Gravesend, drank ale with the learned Mayor of Queenborough, and had a sumptuous repast provided by Mr. Wallis, with similar instances of hospitality experienced in their numerous peregrinations through the length and breadth of the land: these records amply testify both that the spirit of hospitality even now exercised by all persons who have the slightest pretension to a love for natural history, had gained deep root in our island upwards of two hundred years ago; and that no modern naturalist worthy the name has in any wise degenerated from that pristine love of good cheer and good fellowship which distinguished the ancient fathers of the science: *teste*, among other proofs which will present themselves to the mind of our readers, the merry doings at all the meetings of the British Association wherever they may be held. In the nature of things it must indeed be so. If, as Coleridge has well said,—

“ He prayeth well who loveth well
Both man and bird and beast,”

so, altering a word, we may further say with him,

“ He *liveth* best who loveth best
All things both great and small ; ”

and, loving them, useth them without abuse, and according to his ability dispenseth the blessings wherewith he hath been favoured. To the honour of naturalists generally we are bound to record the disinterested hospitality over and over again experienced at their hands. Indeed, when we call to mind the past pleasures of our former botanizing excursions, when, with appetite sharpened by exer-

cise we have gladly sat down to the bread and cheese of the unlooked-for road-side hostelry—astonished the good wife of the half public, half farm-house by our exploits in the way of putting the delicious bacon and eggs out of sight—or, more delightful still, remembering the congregating of kindred spirits around the social board at night, each recounting the events and displaying the acquisitions of the day—we can scarcely avoid exclaiming with Horace (who, by the way, we are almost inclined to claim as a brother naturalist),—

“O rus! quando ego te adspiciam? quandoque licebit,
Nunc veterum libris, nunc somno et inertibus horis,
Ducere sollicitæ jucunda oblivia vitæ?
O! quando faba Pythagoræ cognata, simulque
Uncta satis pingui ponentur oluscula lardo?
O noctes cænæque Deûm! quibus ipse meique,
Ante larem proprium vescor, vernasque procaces
Pasco libatis dapibus. Prout cuique libido est,
Siccant inæquales calices conviva, solutus
Legibus insanis; seu quis capit acria fortis
Pocula, seu modicis uvescit lætius. Ergo
Sermo oritur, non de villis domibusve alienis,
Nec, male necne *Fabbri* saltet; sed quod magis ad nos
Pertinet, et nescire malum est, agitamus.”

Just such a party as Horace describes can we imagine these old herbalists to have been: and truly delightful companions without doubt were they. Contented with the highways of life as of Botany, they thankfully plucked the fresh flow'rets as they presented themselves to their hand; and little disposed were they to explore the byways in search of the more occult treasures of the woods and groves. There was not, it is true, in their days, that necessity for independent and original research which now exists; theirs was the apostolic age of natural history, when naturalists yet had all things in common; when no one, more enterprising than his compeers, feared the receipt of a legal epistle, filled with threats of pains and penalties incurred by diffusing information collected from less accessible and more costly sources *without* permission, and plainly intimating that permission would not be granted even if *asked*; in short, when science was loved for its *own* sake, rather than for the honours and emoluments it might bring to the professor. To the unsophisticated naturalists of those bygone days we must now say adieu;—peace to their ashes!

L.

[Although extremely reluctant to comment on papers obligingly supplied at my own solicitation to this Journal, I think it best to state explicitly that I do not fully participate in the preceding observations on the subject of eating and drinking: and therefore I could wish my readers not to regard those observations as my own. Let it not be understood that I am at all cynical on the subject of good living, but I have always held that these matters are not worthy of record, and it is the *record* of the feeding that calls forth my correspondent's remarks: although I might perhaps enjoy the revelry at the meetings of the British Association, I do not enjoy the perusal of the reports thereof. The same remark applies to our Natural-History Clubs: it is needful for them to feed; it is perhaps excusable that little harmless follies are committed at or after feeding-time, but I hold it is very bad taste in all instances to print and circulate the particulars. The veil of oblivion should be dropped over the scenes as soon as they have passed. That the worthy Johnson should record his having swilled ale with the learned prefect of Queenborough is *per se* to be regretted, but let us not forget that the record is accompanied by a touch of exquisite humour, so exquisite, indeed, that we forget the ale altogether, or consider it as a mere accompaniment of the tale: in this respect Dr. Johnson differs diametrically from our modern historians of the victualling proceedings, who record an intense anxiety about the meats and the drinks, wholly unredeemed by a word or thought that could move the risible muscles to a smile, or give birth to an idea either beneficial to the reader or the science under whose name the Club may happen to be congregated: in London we have Linnean Clubs, Entomological Clubs, Botanical Clubs, Red Lion Clubs, &c., and right merry meetings I believe they are, but we do not report their eatings and drinkings, unless some wag lets out these doings from a propensity for mischievous fun. I would contend that all details which tend to exhibit a mind as taking an absorbing interest in the anticipation or consumption of food and drink, necessarily detract from the respect and admiration with which we were wont to regard that mind. It is a good old maxim, "Eat, drink, and be thankful;" and I presume the thankfulness is, in the present day, supposed to find expression in the printing and hotpressing of the particulars: our scientific *bons vivans* must pardon me if I think otherwise.—*Edward Newman*].

THE DUNDEE NATURALISTS' ASSOCIATION.

Monday, January 3, 1848.—Mr. G. Lawson, President, in the chair.

British plants were announced from Miss Kirby and Messrs. Simpson, Kerr, Ogilvie and Lawson.

The President exhibited specimens of the *Udora canadensis* (?), communicated to him by Miss Kirby, of Leicester, the discoverer of the plant in this country. Specimens were likewise exhibited of the *Koniga maritima*, a plant new to Forfarshire, lately found by Mr. Andrew Kerr, near Montrose.

An interesting paper from Mr. Gorrie was read on the common creeper (*Certhia familiaris*), being a detail of the habits of that curious bird, with an anecdotal illustration.

The office-bearers were re-elected as follows: Mr. George Lawson, President; Mr. William Ogilvie, Secretary; Mr. William Jackson, Treasurer. Mr. Thomas Simpson, Bedale, was elected Local Secretary for Yorkshire.

Mr. Joseph Whittaker, Breadsall, was elected a fellow.

Monday, February 7, 1848.—The President in the chair.

British plants were announced from Mr. Whittaker and Mr. Ogilvie.

Mr. David Jackson read an interesting paper on the pied wagtail, in which he detailed the habits of that bird in a full manner. His remarks were illustrated by several drawings.

Mr. Ogilvie read a paper on the gall-forming insects. After the reading of this paper a conversation ensued on the subject of it, during which several of the members stated observations they had made on some of these curious insects.

The President made some remarks on the character of Linnæus as a naturalist, and intimated his intention of bringing before the Association at an early meeting a sketch of this illustrious man, the opinions contained in which he would be glad to hear discussed by the members.

Mr. George Simpson laid some geological specimens on the table for examination of the meeting.

Mr. John Ansell and Mr. Robert Sim, jun., were elected fellows. Mr. Alexander Croall and Mr. Andrew Kerr were elected corresponding members.

Monday, March 6, 1848.—The President in the chair.

A paper was read from Mr. Andrew Kerr, of Montrose, on the discovery of *Viola hirta* in Kincardineshire, and of *Daltonia heteromalla* in Forfarshire, and specimens of both plants were exhibited to the

meeting. The stations for the *Daltonia* are stated in the 'Flora of Forfarshire,' p. 255, and that for the *Viola* is recorded in the March number of the 'Phytologist' (Phytol. iii. 76). Mr. Ogilvie read a short paper on sponges. A donation of British plants was announced from Mr. Thomas Simpson. Mr. John Ansell was elected local Secretary for east Kent.

Monday, April 3, 1848.—The President in the chair.

On the motion of the President, seconded by the Secretary, the meeting adopted a resolution expressive of the high esteem in which the deceased Mr. William Jackson, late Treasurer of the Association, was held by the members, and of his valuable services in forwarding the objects of the Association. Mr. Lawson presented specimens of the two following Fungi, found by him during the past month, and both of which were new to Forfarshire, viz. :—

Dactylium tenellum, Schrad.—Found in a vasculum growing upon Musci and Hepaticæ that had lain some weeks after being gathered before being dried. The Musci and Hepaticæ were collected in Fife-shire, but were in Dundee when the fungus grew upon them.

Hysterium Pinastri, Fries.—On withered pine leaves in Baldovan Wood, near Dundee, seemingly in great abundance, although not hitherto observed.

A paper from Mr. Gorrie, entitled, "Remarks on the Lapwing," was read. This paper contained a very interesting and full detail of the habits of the bird, together with some no less interesting observations on the influences of cultivation, &c., on the zoology of a country.

A paper from Mr. Anderson, of Brechin, was read, being notes on localities for rare plants not noticed in the 'Flora of Forfarshire.'

The following is a condensation of Mr. Anderson's notes :—

Meum athamanticum.—Road-side between Balintore and Easter Coul, parish of Lintrathen; abundantly.

Linnæa borealis.—Kinnordy Wood, where it was first found by Mr. Banbury.

Hieracium aurantiacum.—Old wood eastward of Kinnordy Gardens. Near Percy House, 1846. Doubtful if really indigenous at either station.

Pyrola media.—Kinnordy Woods; most abundantly, 1846.

Polygonum viviparum.—By the side of a rill near Percy House; abundantly, 1846.

Paris quadrifolia.—Den of Airlic, on east bank of the Islay, about a quarter of a mile below the castle, where it was growing abundantly amongst birch and alder trees, in July, 1846, but out of flower.

Galanthus nivalis.—Among the trees N.E. of the Castle of Inverquhar, abundantly, but not indigenous.

Trientalis europæa.—Very abundant in Kinnordy Woods.

Fegatella conica.—Falls of Drumly-airy, on the Noran. April, 1847. Abundant.

Jungermannia excisa.—Moist banks, Brechin Castle, in fruit, 1847.

Bæomyces rufus.—Hare Craigs, near Broughty Ferry, October, 1847.

Mr. Ogilvie stated the following stations that do not appear in the Flora.

Sphagnum compactum.—Peat bog, near Padanaram.

Hypnum alopecurum.—Den of Mains.

Mr. Lawson added the following:—

Bryum ligulatum.—Abundantly in fruit in Den of Fowlis, 1845.

Hypnum ruscifolium.—Growing on the stones, and likewise on the iron bars of a grating at a well at Ninewells, near Dundee.

Lepraria flava.—Den of Fowlis, on trees. 1845.

Cyphella muscigena.—On mosses, Den of Mains.

Cylindrospora deformans.—On *Vaccinium Vitis-idæa*, Sidlaw Hills, on acclivity near the peat bog, and on its west side.

“*Galium verrucosum* [G. *saccharatum*, *All.*].—Near Forfar, Scotland, Mr. G. Don.”—*Smith's English Flora*, i. 205.

“*Juncus obtusiflorus*.—Near Forfar, rare; Mr. David Don.”—*Smith's English Flora*, ii. 176.

“*Agaricus cantharellus* [*Cantharellus cibarius*, *Fr.*].—We first observed it in the garden at Bellmount, in the county of Angus.”—*Lightfoot's Flora Scotica*, ii. 1008 (second edition).

“*Hydnum repandum*.—We observed it at Bellmount, the seat of the Honourable Mr. Stewart Mackenzie, in the county of Angus.”—*Lightfoot's Flora Scotica*, ii. 1041.

GEORGE LAWSON, P.

212, Perth Road, Dundee,
8th April, 1848.

Variety of the Garden Primula. By JOHN COLLINS, Esq.

Two or three years ago I raised from seed a curious variety of the coloured *Primula* (*vulgaris*). The calyx has the segments terminating in diminutive leaves, similar in form to the radical leaves. This

would seem to favour the notion expressed by some vegetable physiologists, that the calyx is merely a whorl of leaves, which under ordinary circumstances are but partially developed.

JOHN COLLINS.

Kirkburton, Huddersfield,
April 10th, 1848.

List of the Rarer Flowering Plants observed during a residence in Fifeshire in 1846-7. By GEORGE LAWSON, Esq.

I HAVE now the pleasure of sending you for insertion in the 'Phytologist' the following contribution to the Flora of Fifeshire, being a list of the rarer flowering plants observed by me during a short residence in the county in the years 1846-7. It may be proper to remark, that I have been careful to mention no plant but such as I have myself observed; and those that there is reason to suppose may be doubtfully native are distinguished by an asterisk.

Ranunculus sceleratus, L.—In a ditch at the road-side opposite to Seggie Distillery.

**Helleborus viridis*, L.—Sparingly on the old garden wall at Clatto; plentiful in Gowel's Den. In neither of these stations can the plant be supposed to be indigenous; and in the latter it has probably been planted at a remote period as cover for game, although now seemingly quite naturalized.

**Aquilegia vulgaris*, L.—Craigfoodie, abundant, and quite naturalized. It is probably an escape from the garden.

**Berberis vulgaris*, L.—In hedges between Colinsburgh and Anstruther.

Nymphaea alba, L.—Lindores Loch.

**Papaver somniferum*, L.—On Coulford Bridge embankment, between Dairsie muir and Balmullo. It likewise occasionally occurs by waysides, and as a weed in gardens and shrubberies; but it has, of course, no claims to be considered indigenous to the county; nor may it be permanently naturalized.

Cakile maritima, Willd.—Sandy shores of the east coast.

Cochlearia officinalis, L.—Abundant on the rocky coast about St. Andrews, and likewise occasionally plentiful on the banks of streams, &c., although I have not observed it far inland.

Cheiranthus cheiri, L.—On the rocks, old ruins and houses, walls, &c., at St. Andrews, very abundant; on ruins of Balmerino Abbey.

It likewise grows on rocks at Newport, but *there* it may have escaped from a garden, or been planted.

Reseda luteola, L. — Road-side south from St. Andrew's ; at Wester Dron Meal Mill ; very abundant on rubbish at the lime quarries of Ladaddie.

**Viola odorata*, L. — Abundant on the north bank of the Eden at Dairsie Church, and descending almost to the edge of the stream ; on a bank on the outside of the wall that surrounds the burying-ground of Dairsie ; very abundant and luxuriant in Douket Hill, Craigfoodie ; Earls' Hall, Leuchars ; Clayton ; gateway ruins at Airdit. Very probably not indigenous at any one of these stations. (See 'Phytologist,' ii. 863).

Viola flavicornis. — Tents muir between Leuchars and Ferry-port-on-Craig.

Drosera rotundifolia, L. — Abundant in boggy ground on the higher parts of Keneback Hill.

Dianthus deltoides, L. — Craig-log, plentiful. I was told, that a beautiful "laced" variety used to occur ; but it has not been observed for some years, and has probably been exterminated by the Cupar florists. May this variety be the *D. glaucus*, L. ?

Silene inflata, Sm., *β. hirsuta*, is of frequent occurrence. The variety with stem and leaves pubescent, and peduncles and calyx glabrous, occurs sparingly. In an Isle of Wight specimen in my herbarium, of the hairy variety, the peduncle and calyx are *almost* glabrous ; and I believe I inadvertently distributed some plants of this character *as the intermediate variety*, amongst some botanical friends.

Lychnis flos-cuculi, L. — A variety with white flowers was observed in the corner of a small plantation at the road-side between St. Andrews and Anstruther.

—— *diurna*, Sibth. — In moist shady woods, &c. ; plentiful in many places.

—— *vespertina*, Sibth. — Road-sides, dry corn-fields, waste places, &c. ; much more abundant than the last species.

Spergula nodosa, L. — Moist places on the Tents muir sands.

Cerastium arvense, L. — Dry banks, stony braes, and road-sides ; frequent by the road between Cupar and Newport ; and on that between Guard Bridge and Dairsie muir.

**Linum usitatissimum*, L. — Occurs occasionally in cultivated fields, &c., but only the remnant of the cultivated plant. It is still cultivated to a small extent in the county, but used to be so very extensively.

Hypericum humifusum, L.—Hill near Lochmaloine, in a rather sterile pasture field, 1846.

———— *hirsutum*, L.—Banks of the Eden, near Edengrove, plentiful. *

**Geranium phœum*, L.—Hedge-bank, Pitcullo-loan. Probably an escape from Muirhead garden.

———— *pratense*, L.—Marshy and shady ground by margin of the river Eden, near Wester Dron Mill.

———— *lucidum*, L.—Amongst loose stones, &c., Craigfoodie.

———— *molle*, L.—With very pale flowers. Road-side between Leuchars and St. Michaels.

Ononis arvensis, L.—Dry banks by the borders of fields, &c., plentiful. Much smaller in size, and more beautiful in appearance, at the Tents muir, where the spinous form occurs.

**Trifolium incarnatum*.—Old pasture near Dron. This plant I submitted to the inspection of Mr. C. C. Babington, who has since written me: “The *Trifolium* is a very diminutive specimen of the *T. incarnatum*, and has, I doubt not, been introduced within the last few years as a crop. It has no claims to be considered as a native of Scotland. It will hold its ground for a short time and then die out. Such is the case in many places in England. The variety mentioned in my Manual is a very different plant in look, and is probably a distinct species.” Since receipt of Mr. Babington’s note, I have made inquiries regarding the pasture in which I found the *Trifolium*, and I am informed, that it has not been touched by spade or plough for “twenty years, at the least.” The only way, therefore, in which I can account for its appearance there, is to suppose that it may have migrated from some of the adjoining fields, in none of which, however, did I ever observe it.

———— *repens*.—In a viviparous state. Dry bank in shrubbery at Dron; road-side between Colinsburgh and Pittenweem. I observe the same state of the plant noticed in the report of the Surrey Natural History Society, at page 1016 of last volume of the ‘Phytologist.’

Astragalus glycyphyllos, L.—Craighall Den, near Ceres, where the plant grows very luxuriantly, and the stem attains a length of several yards under the shade of the trees.

———— *hypoglottis*, L.—On the sands along the east coast. It especially abounds about St. Andrews, and at the east end of the city it grows very luxuriantly among the sand. I have not observed the white-flowered variety, although I have frequently gathered it on the sands on the north side of the Tay.

Prunus spinosa, L.—Craighall Den; Dura Den, &c.

*—— *Padus*, L.—Near Dairsie Church.

Geum rivale, L.—With semidouble flowers. Den of Kennely. In the same Den I found, in the summer of 1847, a luxuriant state of the plant, wherein the sepals of the calyx were converted into ternate leaves, resembling those of the stem.

**Fragaria elatior*, Ehr. — Road-side between the Free Church Manse of Dairsie and the village; but the plant has probably come through the hedge from some of the village gardens.

Agrimonia Eupatoria, L.—Dairsie Bridge; Blebo; between Anstruther and St. Andrews; very luxuriant in the Den of Craighall, where I have seen it six feet high.

Rosa spinosissima, L.—Newton Hill; Pitcullo-loan; east coast, south from St. Andrews.

Epilobium montanum, L.—With white flowers; ditch by the way-side between Airdit and the Briggis or Bridge-house muir (Phytol. ii. 823); wayside between Guard Bridge and Seggie Hill; wayside three miles south of St. Andrews. In the two last stations the variety does not seem so permanent as in the first-mentioned station.

———— *angustifolium*, L.—Dura Den.

**Sempervivum tectorum*, L.—On roofs of Barn; Byre and Bee shed at Hillend; Newton Hill; on roofs of sheds, &c., at Dron; not indigenous.

**Sedum Telephium*, L.—Old turf wall, Hillend; Newton Hill; Dura Den; road-side near Newburgh.

**Ribes Grossularia*, L.—Quite naturalized in many places in woods by waysides, &c.

**Saxifraga umbrosa*, L.—On shady rocks at Craigfoodie, where it has probably been planted, or escaped from the adjoining garden. When I observed the plant in September, 1846, it was out of flower, but very abundant.

———— *granulata*, L.—Very abundant, especially in the northern parts of the county. Most luxuriant specimens are occasionally to be found growing from the crevices of the moist and shady rocks at Westwater.

**Carum Carui*, L.—Hillend of N. Newton, and some other places, but probably not indigenous, although firmly established.

**Myrrhis odorata*, Scop. — This plant used to grow beautifully at Hillend of N. Newton, but rural improvement has driven it from that station.

Dipsacus sylvestris, L.—Pasture near Dairsie Mills; Bow-butts, Ceres; Craighall Den.

Tragopogon pratensis, L.—Sands to the eastward of the city of St. Andrews.

**Hieracium aurantiacum*, L.—Donket Hill, Craigfoodie, but not indigenous, and has probably escaped from the garden.

**Carduus Marianus*, L.—Hillend of N. Newton, where I have observed it to grow sparingly for many years; it may, however, have been originally planted. By margins of corn-fields and in gardens by hedges, &c., at Dairsie muir.

Eupatorium cannabinum, L.—Bank of a stream near Lochmalonie.

Artemisia Absinthium, L.—Hillend of N. Newton, by waysides, &c.

Gnaphalium dioicum, L.—Newton Hill; Tents muir sands, and other places.

————— *sylvaticum*, L.—Abundant on a hill near Lochmalonie.

Filago germanica, L.—In many places; abundant in pastures, &c., near the finger-post, four miles from Newport, on the Cupar road.

Aster Tripolium, L.—Frequent along the coast.

Senecio viscosus, L.—In sandy fields, Tents muir.

Pyrethrum Parthenium, Sm.—Rocky bank at Pitcullo Castle; near Pittormie; north bank of river Eden at Dairsie Church.

Pyrola minor, L.—Brownie plantation, near the Gauldry.

**Ligustrum vulgare*, L.—Plentiful and apparently wild on a dry, stony and shady bank in Craighall Den, where, however, it does not seem to flower.

**Vinca minor*, L.—Under trees by the road-side between Lochmalonie and Cupar; Blebo Den; in the Den of Clayton Wood. In none of these places does the plant seem indigenous, although I dare say it is quite naturalized.

Convolvulus arvensis, L.—Road-side between Kilmany and N. Newton.

**Echium vulgare*, L.—In a grass-field at Hillend of N. Newton, where it appeared for the first time in the summer of 1847.

**Pulmonaria officinalis*, L.—Craigfoodie, where it has probably escaped from the garden. Mr. Alexander Birrell, of Cupar, informed me that he had observed it near Cupar; but I did not get the exact locality from him, and have been unable to find it in that quarter.

**Anchusa sempervirens*, L.—Amongst stones by the wayside near where Airdit ruins stood; beside ruins in Craighall Den. Not indigenous, although naturalized at both places.

Solanum Dulcamara, L.—Under trees in a dry nook by the way-side near Colinburgh; very plentiful and very luxuriant on banks of the Eden about Dairsie and Edengrove, growing amongst willows, &c.

Digitalis purpurea, L.—Newton Hill.

Verbascum Thapsus, L.—Douket Hill, Craigfoodie; braes near Dairsie Church; Earl's Hall, near Leuchars.

Origanum vulgare, L.—Shady bank near Dairsie Church, by the footpath at the margin of the river.

Prunella vulgaris, L.—With white flowers. In a field on the back or west side of Lucklaw Hill.

Pinguicula vulgaris, L.—Kemback Hill, generally near the summit; in moist places on Tents muir, and along the coast.

Anagallis tenella, L.—By the margin of a little bog near Gateshead; Tents muir.

Primula veris, L.—In abundance on the banks of the Tay about Balmerino, and extending farther down the river.

———— *elatior*?—At the same place.

Glaux maritima, L.—Abundant on the sandy shores of the east coast.

Statice Armeria, L.—East coast, plentiful. In a marsh at the mouth of the Motrey the plant grows abundantly, and a variety there occurs with very pale flowers.

Plantago lanceolata, β . *altissima*, Koch.—Frequent by waysides, borders of fields, &c., in a rich soil.

———— *lanceolata*, γ . *sphaerostachya*, W. & G.—Newton.

———— *maritima*, L.—Plentiful along the coast on rocks, &c.; especially abundant about St. Andrews, where it likewise grows on the ancient walls, ruins, &c.; road-side (Cupar road) between St. Michael's and the parish kirk of Forgan.

———— *Coronopus*, L.—Plentiful along the coast.

Chenopodium Bonus-Henricus, L.—At Pitcullo Castle ruins; road-side between Kemback Kirk and Kemback Mill.

Salsola Kali, L.—Sandy shores of the east coast.

Polygonum Bistorta, L.—Near Pitcullo Castle ruins; very abundant throughout the burying-ground of Dairsie.

Rumex sanguineus, L.—Moist shady place between Dairsie Church and the river Eden.

Daphne Laureola, L.—Earl's Hall Wood, abundant.

**Humulus Lupulus*, L.—Bushy place at Kemback Mill, where the plant was observed in 1846 and 1847, twining upon hawthorn bushes; but improvements have been going on at the place, and the

station will, I presume, be destroyed; abundant in garden-hedges by the wayside between St. Andrews and Guard Bridge. Of course not indigenous.

Betula alba, L.—Boggy ground extending westward from Dairsie Church and farm, where I have no hesitation in pronouncing this beautiful tree to be indigenous. The result of my inquiries among the aged inhabitants of the place tend to strengthen me in this opinion.

Salix pentandra, L.—Kennely Den, where this beautiful willow grows in great luxuriance, although not very abundant.

— *alba*, L.—Many large trees, as well as small plants of this species, grow along the margin of the river Eden, especially that part of it between Dairsie Mills and Nydie Mill. They do not seem to have been planted by other hand than that of Nature.

— *fusca*, L.—Road-side between St. Andrews and Kennely Den, on a ditch bank.

— *fusca*, *♀. argentea*, Sm.—Road-side between St. Andrews and Kennely Den.

— *cinerea*, L.—Margin of river Eden, near Dairsie Church.

— *aquatica*, Sm.—Moist ground between Kennely Den and the east coast.

— *aurita*, L.—Kennely Den; Craighall Den, &c.*

* *Ruscus aculeatus*, L.—Near ruins of Pitcullo Castle, where it is probable it may have been planted at a remote period.

* *Convallaria majalis*, L.—Birkhill Wood. Very probably introduced.

Luzula multiflora, Lej.—In woods and occasionally in moist pastures amongst long grass. I am indebted to my kind correspondent Mr. Thomas Bentall, of Halstead, for a knowledge of the distinctive characters of this species. It is quite distinct, and seems permanently so, from any form of *L. campestris* that I have ever met with.

Listera ovata, Br.—Wood at Bridge-house muir; wood south from St. Andrews, &c.

* *Narcissus Pseudo-Narcissus*, L.—Clayton Wood, plentiful, and seemingly quite naturalized, although decidedly introduced.

* *Crocus aureus*.—Clayton Wood, plentiful, but planted, although it may become quite wild-like in a few years.

* *Galanthus nivalis*, L.—Bank shaded by lofty trees, Pitcullo Castle,

* I have several other *Salices* gathered in the county; but these are not so clearly determined as I could wish, and I do not therefore give them insertion in the present list.

in abundance; shady bank beside the trunks of trees at Airdit; north bank of the Eden between Clayton Wood and the island called the "Pouch," far from houses or gardens; river bank at Westwater, close by gardens. Not likely other than naturalized in any of these stations.

**Phalaris Canariensis*, L.—In a field of vetches near Newburgh; road-side near Wester Dron; plentiful in Dura Den, where it seems naturalized, although it may not be quite so in the other stations.

Ammophila arundinacea, Host.—Sand-links and moors on east coast.

Bromus asper, L.—Shaded banks at Dairsie Church, very abundant; likewise in a wood near the town of Cupar.

Hordeum murinum, L.—Abundant about ruins and old buildings in St. Andrews.

Triticum junceum, L.—Sandy shores of the east coast.

Carex arenaria, L.—Exceedingly abundant on the sandy downs of the east coast, to the exclusion, in many places, of every other plant.

I may likewise mention the *Eutoca Wrangeliana* and *Eschscholtzia crocea*, two garden annuals, both of which I have found growing amongst stones, between Dron and Nydie Mill, at the edge of a foot-path. These have undoubtedly no claims to be considered as natives. The *Eschscholtzia* likewise occurs in great abundance in a piece of ground lying waste in consequence of the Edinburgh and Northern railway operations. When I last observed it at this station it was growing profusely amid a luxuriance of *Fumaria officinalis*, *Galium Aparine*, *Sinapis arvensis*, and other weeds, and seemed indeed as much at home as any one of them. It may not be out of place to add, that *Primula vulgaris* occurs in abundance around Pitcullo Castle, with various colours of flower, some purple of different shades, others white, pink, &c., and not a few of the common yellow hue. The yellow-flowered plants may be supposed to be the natural inhabitants of the banks; but the others have undoubtedly been introduced at some period, although that may be remote.

GEORGE LAWSON.

212, Perth Road, Dundee,
April 10, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, April 7.—John Edward Gray, Esq., F.R.S., President, in the chair.

The following donations were announced:—

"The Twenty-seventh Report of the Council of the Leeds Philosophical and Literary Society at the close of the Session 1846-7;" presented by that Society.

"On Conjugation in the Diatomaceæ," and "Further Observations on the Diatomaceæ, with Descriptions of new Genera and Species," by G. H. K. Thwaites, Esq.; presented by the author.

Mr. Thomas Moore communicated a paper "On a Variety of *Lastræa Filix-mas* found by him in the Neighbourhood of Guildford, Surrey, in December last." (See Phytol. iii. 137).—*G. E. D.*

On a Variety of Lastræa Filix-mas. By THOMAS MOORE, Esq.*

WHILST walking through a wood in the neighbourhood of Guildford, in December, 1847, my attention was particularly arrested by a remarkable fern, which I at first thought to be a species distinct from any which I had previously seen. I was accordingly induced to gather one or two of its then half-perished fronds, with the intention of examining them more closely at a leisure moment. On giving the plant this further examination, I found it to constitute a very distinct variety of *Lastræa Filix-mas*, apparently identical with examples which I had observed in the herbarium of the Society, from King's Cliff Valley, near Bridgewater, sent by Mr. Clark. Subsequently Mr. Newman assured me it was the variety of that species which he had figured at p. 197 of his 'History of British Ferns,' and mentioned at p. 201 in these words: "This plant in habit and general appearance much more nearly resembles *Athyrium Filix-fœmina* than the species which I am now describing (*Lastræa Filix-mas*), but the scales of the stem, the texture of the frond, and the character of the involucre (although I have only seen it after the bursting of the capsules) are decidedly those of *Filix-mas*, or a closely allied species." I had supposed Mr. Newman's plant and my own to be the same, although he does not very distinctly explain, nor indicate its peculiarities.

What should form a species, or be considered a variety among plants generally and ferns especially, is at present decided by no very explicit rule; and while this continues the case, it seems the most desirable course to rank the plant under notice as a variety of *Lastræa Filix-mas*, although very distinct as such from the common

* Read before the Botanical Society of London, 7th April, 1848.

state of that species. I propose that it should bear the name of *incisa*.

I will now, in a brief review of the species (British) and its varieties, endeavour to point out their differences.

Lastrea Filix-mas, Presl. — Fronds broadly lanceolate, sub-bipinnate; pinnæ linear-lanceolate; basal pinnules more or less distinct, the rest confluent all oblong, crenato-serrate or with toothed incisions; lateral veins of pinnules simply forked or 3- many-branched; sori in a proximate line on each side of midvein; indusium entire, very persistent.

Var. α . — Pinnules obtuse-oblong crenato-serrate, their lateral veins simply forked, or sometimes 3-branched; sori confined to lower half of pinnules.

Aspidium Filix-mas, Swartz, Willdenow, Smith, Hooker, &c. Common.

Var. β . *incisa*. Robust; pinnules elongate and (especially those next the main rachis) regularly divided by deep incisions, the lobes more or less serrated; lateral veins many-branched; sori extending nearly the entire length of pinnules. Schkuhr's *Aspidium depastum* appears to be a monstrous state of this variety, which is not the *Aspidium erosum* of Schkuhr, as suggested by Mr. Francis, that plant being figured with glandular indusia, and otherwise different.

HAB. Near Bridgewater; near Guildford; near Cockermouth.

Var. γ . *abbreviata*. Small; sori confined to base of contracted or obsolete pinnules forming a linear series on each side of midrib of pinnæ.

Polystichum abbreviatum, De Candolle (fide Newm. & Bab.) ? *Aspidium Filix-mas recurvum*, Francis.

HAB. Probably not uncommon in dry situations.

A monstrous form of the variety *incisa* in the herbarium of the Society (King's Cliff Valley, near Bridgewater, Mr. Clark), has the pinnules very irregularly and deeply cleft, and manifests an indication of producing forked pinnæ, in which state it very nearly coincides with Schkuhr's figure of *Aspidium depastum*.

A curious form found near Woolwich by Dr. Bossey, in the herbarium of the Botanical Society, though fruitful, has the lobes of the pinnæ depauperated, giving the pinnæ the appearance of the leaves of the *Comptonia asplenifolia*. I am not aware to what extent it may have been observed; probably merely an individual plant which had been affected by local causes.

The fronds of this species of *Lastræa* grow in a circle from the crown of the caudex, and attain from one to four or five feet in height, the base of the stipes being densely covered with pale-coloured, chaffy scales, of various sizes: they are sub-bipinnate, broadly lanceolate, often oblong-abrupt, with an acuminate apex. The pinnæ are linear-lanceolate, acute, alternate, the lowest shorter than those about the middle of the frond; they are pinnate next the main rachis, the pinnules having a narrow attachment, but being scarcely stalked; in the rest of the pinnæ the pinnules are usually more or less combined at the base, most so in the variety *abbreviata*, but less so in the variety *incisa*, than in the normal state, in which latter the pinnules and lobes are of an oblong-obtuse outline, crenato-serrate on the margin, and more acutely and closely serrate at the apex. In the variety *incisa* the pinnæ are somewhat more distinctly pinnate, and they are also more elongate, and narrow at the point, the margins being more or less deeply incised or lobed, each of the lobes having from two to four or five serratures. The midvein of the pinnules and lobes is sinuous; the lateral veins are alternate, and they become branched near the midvein—in the normal plant usually simply forked, or occasionally with the posterior branch again forked; the anterior branch on a greater or less number of these lateral veins at the base of the pinnule bears a sorus just beyond the fork, so that the sori in this case form a short line on each side of and near the midvein, extending about half the length of the pinnule. In the variety *incisa* the lateral veins are more compound, being sometimes three- sometimes four- and at the base usually many-branched; but the sori, as far as I have observed, are only produced on the anterior branch, as in the more common plant, so that they are also ranged in a line on each side the midvein; they extend, however, from the base nearly to the apex of the pinnule. In the variety *abbreviata*, on the other hand, the sori are confined to the base of the obsolete pinnules, forming a line against the rachis of the pinnæ. The sori are covered by smooth, very persistent, reniform indusia, each of which is connected to the back of the vein by the sinus, which is turned away from the apex of the pinnule or lobe.

THOMAS MOORE.

April, 1848.



Further Remarks on the Second Edition of the 'London Catalogue of British Plants.' By JOSEPH SIDEBOTHAM, Esq.

MR. WATSON's letter in the last number of the 'Phytologist' (Phytol. iii. 83), asking "Is *Gentiana acaulis* wild in England?" seems to call for a word of reply from me, inasmuch as it casts a doubt on my former statement. I am sorry that it is not in my power to give any further information on the subject, as Mr. Crozier has been dead some time, and of Mr. Townley I have seen nothing for some years, nor do I know where to find him. There can be no doubt as to the species referred to being the *Gentiana acaulis*; no one with half an eye could mistake it for any other British gentian; therefore the only conclusions are, either that Mr. Townley found the plant apparently wild, or that he told a deliberate falsehood; the latter I cannot believe to be the case, as he could have no motive for practising such a deceit. The only doubt I have is that it had been introduced, as *Linaria Cymbalaria* was on the rocks in Wales. I am glad Mr. Watson has taken up the subject, as no doubt he will tell us what is meant by a *naturalized* species and one that is *imperfectly naturalized*, and thus explain *some* of the apparent inconsistencies in the new 'London Catalogue,' so many of which were pointed out when the first edition made its appearance, and of which there was such a meagre attempt at an explanation.

Mr. W. says that the three other species mentioned in my letter are "certainly introduced, but imperfectly naturalized:" this, of course, calls for *his* definition of the word naturalized as regards plants.

Allow me to give my idea of the meaning of the term. When a plant is introduced into another country and establishes itself, so that either by seed or otherwise it propagates, and increases the geographical range of its species, without the interference of man, and does not again disappear in the course of a few years, I should call the plant naturalized. I am much obliged to Mr. Pascoe for his remarks on the subject, especially as regards *Oxalis stricta*, and quite agree with him as to the difficulty of drawing a line of distinction between the native, naturalized, and imperfectly naturalized species.

The line which the compilers of the 'London Catalogue' have drawn appears to have been executed with a very trembling hand, as it is singularly indistinct in some places, and in others exceedingly crooked, and apparently drawn without regard to any rule or guide. By what rule, for instance, should they consider that *Cheiranthus*

Cheiri and the Vincas, &c., are not native, whilst *Impatiens noli-metangere*, *Helleborus fœtidus*, *Trifolium ochroleucum*, &c., are put down as undoubtedly indigenous. Surely it is very hard upon the turnip to place it side by side with such plants as *Mimulus luteus*, and on the pear-tree to be excluded altogether, when such plants as *Sisyrinchium anceps* are let in. What can we infer but that the former have *lost caste* on account of their antiquity, and that to find favour with the compilers of the 'London Catalogue' as a naturalized species, the plant must be simply *a new discovery*.

JOSEPH SIDEBOTHAM.

Manchester, April 17, 1848.

Notes of a Five Hours' Ramble on the Findhorn.

By ALEXANDER CROALL, Esq.

SOME will perhaps smile at the idea of a botanical excursion of *five hours* in length; but those who have little time to spare must make the most of it they can; and after all it not unfrequently happens that when we have least time we do the most good.

The result of our short ramble was certainly such as to leave room for regret that our time was so limited; while we had every reason to be satisfied with the enjoyment we obtained, as well as with the specimens collected.

Having previously made arrangements for spending a day on the banks of the Findhorn, in company with Dr. Innes, of Forres, a no less amiable man than an acute and enthusiastic botanist, we appointed Saturday, 8th April, for our excursion.

Our first peep at Aurora was rather chilling for our spirits. A heavy shower of snow had fallen during the night, and shrouded all nature in a wintry mantle. The sun, however, soon dissipated the nebulous canopy, and the snowy shroud gradually yielded to his influence. The air, however, was still cold, and showers of hail and sleet falling at intervals, kept our courage at rather a low temperature. Now or never, however, was our motto, and off we started, between ten and eleven a.m., and, without any incident worthy of note, reached our destination about twelve. Having put up our horse and gig at the farm-house of Outlaw-well, we proceeded to the banks of the river. Occasional showers were still falling, and the wind was keen and biting; but the high banks of the river, crowned with their fringe of dense

wood, soon screened us from the blast, and the beautiful panorama with which we were now encircled soon banished all thoughts of the cold and the snow, and made us regret that days instead of hours were not at our disposal for its investigation. We might willingly forbear all general details in this short notice were it not in the hope of inducing some more able botanist, with more time at his disposal, to spend a few days on the banks of this romantic stream.

The Findhorn, for the greater part of its course, flows over a wild and rocky channel, and its banks are mostly composed of steep and rugged rocks, clothed in all the richness of nature's garniture, and would no doubt well repay the most careful researches of the exploring botanist. The space to which our ramble was on this occasion restricted, was in the vicinity of the small village of Sluie, at the point where the primary or igneous rocks first make their appearance, and did not extend beyond a quarter of a mile in length. The banks of the river are here mostly high and precipitous, often projecting over the stream to a considerable extent, rendering all access to its margin impossible. Here and there the feet of the fisherman have worn a path, narrow, difficult, and often dangerous, down to the margin of the stream, along which you can proceed for a short distance, when you must often retrace your steps to the summit, and then, by a similar pathway, make another descent to the richly moss and lichen-clad rocks that skirt the river. The upper part of the bank is densely clothed with oak, birch, larch, spruce, and Scotch fir, here and there relieved by the white polished bark of the poplar, or the yellow drooping catkins of the willow.

From the bottom as well as from the summit of the projecting cliffs, some beautiful and highly interesting views are obtained of the dark winding stream; at one time rushing over its rough craggy bed, foaming with all the wild sublimity of mountain grandeur; at another, it coils silently over some projecting ledge into a dark and almost fathomless pool, in whose eddying recesses the salmon play their gambols in security. Here you may see the patient angler, seated on a crag, almost motionless as the rock beneath him, eagerly watching his nibbling prey. There you may observe an old man, seated on a shelf scarcely larger than his body, at the bottom of a fall, up which the poor fish are ever and anon vainly endeavouring to make their way, and as they fall backwards drop quietly into the net which the fisherman holds in his hand ready to receive them. At one spot you perceive the eyry of the hawk or the eagle, with the watchful bird seated on a crag above, of which he seems but to form a part; while

a little beyond a populous colony of herons are already busily engaged in the duty of incubation.

The upper part of the bank among the wood is densely carpeted with a profusion of the more common species of cryptogamics; while the cliffs below are in many places mantled with a profusion of *Saxifraga aizoides*, now only beginning to expand its dark green foliage, but which, when in flower, will light up these rough crags with a perfect glow of beauty. In many places, the damp rocks are widely curtained with *Hypnum commutatum*; while from the drier cliffs the more delicate tresses of the ivy, the honeysuckle, and the bramble are suspended in profusion. At these interesting scenes, however, we had only time to glance, our object being among the cracks and crevices of the rocks below.

Our first descent was effected by a sloping bank, a little below the village. This slope was covered towards the bottom with stones, apparently tumbled down from the fields above. They were now covered with a close carpeting of mosses of various species, among which we were quite delighted to find *Bryum ligulatum*, affine, and *roseum*; the first two fructifying abundantly; the last, although in great plenty here, as in many other places in the district, has not yet been found in fruit. *Bryum punctatum* and *turbinatum*, *Jungermannia Lyoni*, *Hypnum loreum* and *molluscum*, *Fissidens adiantoides*, &c., &c., were plentiful in fruit. Leaving this spot we proceeded to the wet rocks above the village, where we found, among a variety of other less interesting species, *Bryum marginatum*, *rostratum*, *punctatum*, *capillare*, *turbinatum*, and *albicans*, *Andræa rupestris*, *Anictangium ciliatum*, *Dicranum pellucidum*, *Weissia crispula*, *Fissidens adiantoides*, *bryoides*, and *taxifolius*, *Hypnum alopecurum* and *ruscifolium*, *Bartramia calcarea*, *Edmon.*, *Jungermannia pumila*, *Lyoni*, *julacea*, *pubescens*, and *Blasia*, *Solorina saccata*, *Sticta pulmonaria*, *Placodium plumbeum*, *Peltidea aphthosa*, *Nostoc commune*, &c., &c.

Bryum affine I have found frequent in the district, but seldom in fruit. *Br. albicans* is also frequent but barren. *Fissidens adiantoides* hangs in luxuriant festoons from the dripping rocks; the fronds sometimes six inches in length. *Bartramia calcarea* was also plentiful, but the setæ were quite young, and the direction of the foliage was very variable; stems with erect, and others with secund leaves were often found on the same plant. *Solorina saccata* and *Placodium plumbeum* were also abundant in fruit. *Peltidea aphthosa* was barren. *Jungermannia Blasia* was also in fruit. This I also found in fruit abundantly on the day previous, in a wild rocky ravine near the Manse of

Birnie, in a ramble with the Rev. George Gordon,* where it was associated with remarkably luxuriant specimens of *Diphyscium foliosum*.

The above list of species is small, but if viewed in connexion with the season, the weather, and the limited time at our command, is not unsatisfactory, and sufficient at least to induce a desire for more extended investigation. Dr. Innes has found many interesting species in the neighbourhood of Forres, and I doubt not that the upper part of the river would amply repay the researches of a careful explorer.

ALEXANDER CROALL.

Cothill of Guthrie, Friackheim,
by Arbroath, April, 1848.

Reply to Mr. Sidebotham's "Further Remarks on the Second Edition of the 'London Catalogue of British Plants.'" By HEWETT C. WATSON, Esq.

I RECOGNIZE the right of Mr. Sidebotham, as of any other botanist, to publish dissentient opinions respecting the categories to which species are referred in the 'London Catalogue of British Plants.' (See *Phytol.* iii. 140). Where such opinions are founded on correct knowledge, or are expressed with a view to elicit explanations which cannot be conveyed in a list of names, they are entitled to respectful attention, and would command it from one or other of the editors of the 'Catalogue,' either in the way of immediate response, or by notes for use in preparing any future edition. But the insufficiency of knowledge of the subject, by which Mr. S. supports the self-sufficiency of his strictures, will exonerate us from any obligation to answer them in detail. Nor should I have troubled myself to notice at all the last article from Mr. Sidebotham's pen, had he not mingled misstatement with mistakes or misapprehensions. If not incumbent, it must be at least allowable for any one to repel false assertions respecting himself or his doings.

In the paragraph which is continued from page 140 to the cover of the May 'Phytologist,' and which may be expected to appear on page 141 of the June number, Mr. Sidebotham writes thus: "Surely it is very hard upon the turnip to place it side by side with such plants as

* Mr. Gordon takes a lively interest in the progress of Natural History, only excelled by his devotedness to the spiritual interests of his charge.

Mimulus luteus, and on the pear-tree to be excluded altogether, when such plants as *Sisyrinchium anceps* are let in." Now, if any exact meaning is to be gathered from that vague style of expression, it must involve an assertion, on the part of Mr. Sidebotham, that the pear-tree is excluded from the list of British plants, in the second edition of the Catalogue referred to. But any botanist who will take the trouble of looking for the name of the tree in the Catalogue, may see "*Pyrus communis*," in its proper place, no. 362, printed in the ordinary type used for other undisputed natives. Thus supported by published evidence, accessible to any botanist, I am justified in saying that Mr. Sidebotham has made out a seeming case against the 'London Catalogue' by a glaring *mis-statement of fact*.

Were I to put down my pen here, it would leave Mr. S. under a charge very like that of deliberate falsehood. But I will not do so, because I think an explanation may be suggested, which will reduce the mis-statement into another example of that imperfect knowledge of British Botany, which his writings have usually betrayed, and so place it against him as an instance of intellectual rather than moral deficiency. In the list of 'Excluded Species,' appended to the 'London Catalogue,' is the name of the service-tree, "*Pyrus domestica*," there placed with the sign of imperfect naturalization, because only a solitary tree of that species is known to be apparently wild in this country. Mr. Sidebotham may possibly have seen the name of *Pyrus domestica* among the excluded species,—may have supposed it to be the botanical name of the pear-tree,—and may have neglected to look for the latter in its proper place in the general list. It is true that such an explanation implies inadequate knowledge and hasty assertion; but I would rather refer a mis-statement to intellectual deficiency than to moral defect.

Now, it may signify little to myself or others, whether the mis-statement was an intentional falsehood,—whether it was a reckless assertion made without care of its truth or falsity,—or only a simple blunder through ignorance of the difference between the pear and service-trees. Whichever of these explanations be received, it will leave Mr. Sidebotham in a position not likely to give weight to his opinions on the 'London Catalogue,' nor to recommend him as a trustworthy botanical critic. He will show greater prudence or wisdom in future by abstaining from strictures upon others until he can make them from the vantage ground of knowledge.

Thames Ditton, May 7, 1848.

H. C. WATSON.

Carex riparia and *C. paludosa*. By WM. A. BROMFIELD, M.D.

BESIDES the characters commonly assigned in books for the discrimination of these two closely allied but very distinct species, there is another, which, as far as my own experience goes, is of equal stability with those formerly noted. In *C. riparia* the connectivum of the anther is produced into a small but very distinct awn-like point, which is either entirely obsolete, or reduced to an extremely minute apiculus in *C. paludosa*, a difference which, though not verbally noticed, is accurately expressed in the admirable figures of these species in Curtis's 'Flora Londinensis.' The anthers of some Carices, as *C. lævigata* and *C. binervis*, are spinulose at the tips. This circumstance, and the above instance of the production of the connectivum into a subulate point, may possibly be found capable of affording good discriminating marks, as the latter certainly appears to do with regard to the species in question.

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight;
May 9th, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, May 5, 1848.—John Edward Gray, Esq., F.R.S., &c., President, in the chair.

Francis Brent, Esq., of Liverpool, was elected a member.

Donations to the library were announced from the Horticultural Society of Berlin, and Mr. T. W. Barlow.

British plants had been received from Mr. James Lynam.

Mr. T. H. Goulding read a paper "On the Botany of Devon and Cornwall."—*G. E. D.*

Further report of Experiments on the Cowslip and Oxlip.

By HEWETT C. WATSON, Esq.

IN the pages of the 'Phytologist' for June of last year, I reported the results, incompletely shown at that time, of two additional experiments, made with a view to ascertain the extent of variation which will occur among plants raised from seeds of the cowslip or oxlip.

My copy for 1847 being in the hands of a binder, I am unable to refer to the exact pages, or to recall precisely what was there stated. But the full results of the two experiments are now before me, and can be recorded.

In 1846 I marked a plant of an ordinary cowslip (*Primula veris*), also one of the "Claygate Oxlip" (*P. vulgaris* *var. intermedia* of Lond. Cat.), both then in flower in my garden, and sufficiently near other species and varieties to be hybridized by bees, if hybridization is thus effected among these plants. The seeds of these two plants, so marked, were afterwards sown in flower-pots, which had been first carefully washed clean, and then filled with earth in which it was a moral certainty that no seed of any *Primula* could be lurking. The young plants were subsequently removed from the flower-pots, and planted out in two separate rows, in loamy soil, and distant a few inches from each other. Some of the young plants flowered in 1847, as recorded in the 'Phytologist;' others, not until this present year. The results of the two experiments are now before me, as follows:—

First.—From the seeds of the Claygate Oxlip (*P. vulgaris* *var. intermedia*) fifteen plants are now living, and fourteen of these are flowering. Scarcely two of these are quite alike, the varieties gradually passing one from another into the two extremes of cowslip and primrose. Grouped according to the varieties given in the 'London Catalogue,' they will stand thus:—

- 4 *Primula vulgaris* (or primroses), 2 of them red-flowered, and all producing one or more umbels elevated on common scapes, in addition to the single-flowered pedicels, arising from the sessile umbels, as in the wild primroses.
- 5 *Primula vulgaris* *var. caulescens*, all the flowers being in umbels on elevated common scapes, 2 of the plants producing dingy reddish flowers.
- 2 *Primula vulgaris* *var. intermedia*, or plants very closely resembling the parent plant.
- 2 *Primula veris*, with the teeth of the calyx more acute than usual in wild cowslips, but still quite different from the subulate calyx-teeth of the true primrose.
- 1 Plant without flowers, but a primrose by the form and pubescence of the leaves.

Second.—From the seeds of the true cowslip (*P. veris*) there are sixteen plants, all yellow-flowered; besides one red cowslip, which, owing to an accidental misplacement, cannot be positively included as one of the lot, although most probably such. Among these plants

there is a gradual transition or series ranging from the ordinary cowslip into the Claygate Oxlip, or even a little nearer to the caulescent primrose than is the latter. Placed in groups, they may stand thus:—

- 10 *Primula veris*, most of them with flowers larger than usually seen in the wild cowslips of the meadows, a difference which may be attributed to the vigorous growth of young plants unimpeded by other roots around them.
- 2 *Primula veris* *var. major*, differing from the true cowslip by their larger and flatter corollas, paler in colour, and by the more acute teeth of their calyces.
- 4 *Primula vulgaris* *var. intermedia*; the flowers more like those of the primrose than those of the cowslip, in colour, size, and form.

In connexion with the previously recorded experiments, I seem now to be justified in asserting; *first*, that seeds of a cowslip can produce cowslips and oxlips; and *secondly*, that seeds of an oxlip can produce cowslips, oxlips, and primroses. The transition from the cowslip (*P. veris*) to the primrose (*P. vulgaris*) is thus complete, but not direct or immediate; for, I have not yet ascertained that a typical *P. vulgaris* can produce a typical *P. veris*, or *vice versâ*, without passing through or producing the intermediate link of the oxlip, namely, the *P. vulgaris* *var. intermedia* of the 'London Catalogue,' and several times mentioned in the 'Phytologist,' under name of the "Claygate Oxlip." I employ the term *oxlip* to designate the intermediate form, because it is undoubtedly to that variety of primrose or cowslip, or hybrid of both, that rustics apply the name: they do not intend Jacquin's *P. elatior*, the Bardfield Primula, under a name which is familiar in various counties.

It may here be observed that, in my own experiments, the seeds have always been taken from a single plant, examined and marked while in flower, and dried examples of it preserved in my herbarium; so that, whether a typical form of cowslip, or a variety of oxlip, I am able to point out the parent or its counterpart exactly. In a former volume of the 'Phytologist' (i. 218 and 313) I mentioned that the antecedent experiments wanted one or other of these requisites of precision; and it therefore appears to me to be still a desideratum, to show by experiment that a primrose can produce a cowslip, or a cowslip produce a primrose, directly at the first descent, without an intermediate stage of the oxlip form. The hybridization hypothesis would be negatived by the crucial experiment of this direct production or change.

That hypothesis wears an aspect of plausibility so long as the species on either side can only be shown to produce the intermediate forms, or these latter to reproduce the two typical species, along with their own image;—strange as it would be, to find a she mule producing mules, horses and asses.

HEWETT C. WATSON.

Thames Ditton, May 15, 1848.

Notice of 'The Principles of Nature, her Divine Revelations, and a Voice to Mankind.' By and through ANDREW JACKSON DAVIS, the Poughkeepsie Seer and Clairvoyant. London: John Chapman, 142, Strand. Stereotype Edition. 1847.'

THE unparalleled success of the 'Vestiges' has called into existence, amidst an ocean of similar trash, a translation of Oken's 'Physiophilosophy,' and the 'Divine Revelations' of the Poughkeepsie Seer. The three works have a very similar tendency: that of substituting some philosophical hypothesis for the religion which the Old and New Testaments teach and reveal. All three authors assume a faculty of judging independently of facts. The Vestigian trusts mainly to the inventive genius of Lamarck; Oken "has a kind of inspiration;" Davis reveals his physiophilosophical ideas "under the influence of mesmerism." The first and last appear to me imposters: they must pardon me in saying that I doubt their own faith in what they write: Oken is in earnest, but, alas! it is the earnestness of a lunatic. Happy were it for our science if these mischievous writers would turn their attention elsewhere!—gladly indeed would I escape the thankless task of assailing others!—but after having for fifteen years publicly advocated the study of Natural History, it seems incumbent on me to use my feeble efforts in defending it against those who would avail themselves of the science as a means of promulgating irreligious opinions. Why Botany should be brought into antagonism with Scripture, and why leaves and flowers and fruits should invalidate the Christian religion, are problems I cannot solve; but the 'Poughkeepsie Seer' promulgates this doctrine, and readers and admirers seem to have been so abundant, that it was found necessary to stereotype the work, in order that a supply may be continually kept up commensurate with the demand.

I have ever treated with contempt the ill-judged attempts to

depreciate the study of Natural History on account of its supposed tendency to infidelity : it seems to me a manifest absurdity to accuse God's works of antagonism to His written law, and to assert that a knowledge of His works could induce a violation of His law !—that the revelations of Nature could interfere with the revelations of religion !—that truth could clash with truth ! Absurd, however, as is the attempt to bring Natural History into disrepute on the score of this imagined clashing with religion, it is far less objectionable than the opposite fallacy, now reduced to a science under the name of *Physiophilosophy*, which professes to found a philosophical religion on the phenomena of Nature, irrespective of Scripture and subversive of our faith in its divine origin. This physiophilosophy supplies the very argument wanted by the timid religionists alluded to above, and verifies and irrevocably confirms their worst apprehensions of danger from the science. On this ground alone, and not from any idea that the Bible or religion require or can receive assistance from my pen, I have ventured on these observations, and having expressed my strong disapprobation of physiophilosophy generally, I will now confine my observations to its boldest and most fashionable exponent, Andrew Jackson Davis.

I have already said that I consider this man an imposter. I do not give the slightest credence to the statement that he is an illiterate man, or that any portions of his revelations are the result of mesmeric clairvoyance, or that there is anything whatever in his state, or attainments, or communications, beyond the combination of good memory, extensive miscellaneous reading, and fertile invention. I readily give him credit for all this, but inasmuch as he denies such assistance, and attributes his knowledge to a totally different source, I cannot but regard him as an imposter ; and I take up his work as the compilation of a man who has brought much jumbled reading to his aid, and who, where all information was wanting, has shown considerable aptitude in the science of invention.

Without attempting to answer the writer (and apologizing to the reader for introducing the paragraph at all), I will show how this totally illiterate man disposes of the Trinity.

“The original conception of the Trinity arose from the three supposed beings called Parama, Vishnu, and Siva. * * * This Trinity was not established in the world until the Egyptian priests of the Sun, and the Persian Magi, promoted the three beings to a higher degree of potency than they originally possessed ; and the conception was grasped by Zoroaster, who immediately converted them into three united beings.”

Now Mr. Davis is said to gain his acquaintance with the Trinity, Parama, Vishnu, Siva, Egyptian priests of the Sun, Persian Magi, and Zoroaster, by Divine revelations of Nature when in a state of mesmeric clairvoyance. If transatlantic naturalists like to believe this they are quite at liberty to do so, but I cannot admire the taste which dictates its reproduction before the British public : and I turn with disgust from such palpable impossibilities as this, to those passages in which the author can have received no assistance from books or from observation, and which are as purely fictitious as the adventures of Munchausen, the flying Dutchman, or the jumping baron ; and, in my humble opinion, rise no higher as objects for the attention of the learned. That readers and admirers can be found for such trash must be a matter of regret to all who are capable of reflection, but that such readers and admirers should be among the honourable and influential literati of the day is a fact ‘ to make angels weep.’ My extracts are purely phytological.

Vegetation of Saturn.—“ There are four general classes of vegetable developments here existing. One class assumes high and bulky forms, but it is produced only near the poles, where exist the minimum amount of light and heat. These do not exist near the equator, nor in the vicinity of water. They are gigantic vegetable developments in the form of trees ; but the kinds of materials composing them are not to be found in any higher order of vegetable formation. The second class has a smooth, slim body, and the branches in length are twice that of the body ; and they cast a deep shade. They are in appearance similar to the Upas, but not in quality or composition. These bring forth delicious fruit, which is long in shape, internally white, and encompassed with a thick external coating. The branches that first eject themselves from the body are several feet from the earth, but not quite so high as it is from these to the top. This class should be understood as the second in the order of formation—as the ultimate and perfection of the former class. The third in order presents itself as a more perfect vegetable. This rises but a few feet above the surface of the ground. It has several descending boughs, which when developed act as new bodies by fastening themselves as roots in the earth. This vegetable is much complicated in its parts. Its location is near the equator, and to this fact its peculiarity may be attributed. This brings forth a kind of pulse-fruit. Being exceedingly nourishing, it enters very frequently into the composition of animal forms.

“ The fourth vegetable formation is the last developed and most perfect. Being a succeeding development of all beneath it, its composi-

tion is much more perfect than that of others. Therefore it stands as an ultimate of the vegetable kingdom, comprehending the essences of all below its high order of being. Its roots and trunk are very long and slender, and it develops from the bottom of the trunk to the shooting forth of the branches, calices corresponding to the petals of the bud and its fruit. It is not high, but grows with exceeding spontaneity; and it is fitted for the uses of the animal economy. It is produced in one half of one of the years, at the equator—reproduced twice in one of this planet's years. And this is the most useful vegetable upon the surface of Saturn.

“There are intermediate formations, from the lowest to the highest, in the vegetable kingdom. But it would be impossible to classify these intermediate species; and the four generalizations give a distinct conception of the vegetable developments of this plant; the object being only to establish progressive succession. And this being founded in natural and invariable laws, analogy confirms this revelation.” — i. 176.

The Vegetation of Jupiter.—“The vegetable productions of Jupiter are more extensive than those of Saturn. Of the various species of plants existing upon its surface, a detailed description is not necessary to be given. But a general classification will be made of the prominent kinds existing, in order that the perpetual ascension may be conceived of as here preserved in order and harmony. There are on this planet upward of three hundred thousand species of plants. But their connexions with each other are so intimate, that they warrant but five general classifications.

“The *first* of these is an exceedingly large and bulky tree, whose circumference varies in size according to the circumstances under which it is produced. It is formed of the compositions existing in the planet's materials; and being the strongest production of the vegetable kingdom it is consequently the most imperfect. It has heavy seams formed of complex fibres, which are fully developed about the branches in thin ejected limbs, upon which exists a species of fruit. This fruit is of a nature suitable to enter into the composition of the lower order of animals, but is exceedingly deleterious to the higher classes.

“The *second* species of plant differs from the other in height, bulk, and general appearance. It is encompassed with a thick bark. The productions of this tree are limited. It brings forth a kind of juice, which flows freely from the cups existing upon its exterior. This is useful, as it is very nourishing and invigorating to the animal economy.

“The *third* class of plants slightly typifies the wheat,—and is more homogeneous with the constitution of the higher orders of animals.

“The *fourth* class approximates still nearer to animal existence. Being more perfect in composition than the others, it presents a variegated foliage, the extracts from which enter essentially into the forms of the first animals.

“The *fifth* class being an ultimate of the four others described, is necessarily more exalted in composition. This species is a kind of *zoophyte*,—which may be considered as mediator between vegetable and animal existences. For while it sustains a close connexion with the former kingdom, it throws feelers of sensation into the latter, and thus it partakes of both vegetable and animal life.”—i. 187.

I may perhaps here make a passing allusion to the human inhabitants of Jupiter: they walk on all fours; they inhabit tents lined with a bluish bark: possessing “an expansive and sweeping intellect, they comprehend the laws and relations of their being with one concentrated thought.”

Mr. Davis does not give us any detailed account of the phytology of the asteroids which intervene between Jupiter and Mars, but we are informed that they possess vegetables, and are shortly about to have a creation of animals: we hope Mr. Davis will give the world due notice of the event when it occurs. Concerning the vegetation of the remaining planets, we are furnished with the following brief but interesting particulars.

The Vegetation of Mars.—“Its surface abounds with extensive vegetable productions, these being still more numerous than those of Jupiter, less perfect, but superior to those of Earth. The animal formations are not so extensive; but they ascend from the lowest up to man in successive modifications of forms which correspond generally to their interior principles. And man there, is in a much more exalted state, both physical and mental, than the inhabitants of the earth; but he does not approach the high state of exaltation and refinement which characterizes the other planets’ inhabitants. I will mention the kinds of vegetable productions that are most used, and not enter into a classification of the general species of either the vegetable or animal kingdom. There is a species of tree existing among them that is of vast use. It germinates and gradually develops itself into a stout, bulky form, representing the spiral. Its branches are long, and extend far around the trunk. Its leaves are very broad, with a mixture of a bluish and reddish color, with more prominence of the green. Its blossoms are very beautiful, and its fruit is esteemed among them as

the most useful upon their planet. The form of this fruit is very round, typifying slightly the cocoa-nut, and is used among the inhabitants as a kind of bread; and its action upon the system is highly invigorating. The bark of this tree is also extensively used for many purposes, with a kind of glue that proceeds from another tree. It is used in the construction of their habitations and in the formation of garments. But there is another vegetable of a low stature, that produces very fine and beautiful fibres, which are very neatly woven together, and used generally among them as their main apparel.”—i. 197.

Vegetation of Venus.—“There are many species of plants existing upon its surface. It is unnecessary to classify them; for it would be of little importance or use to the world. The trees are generally low, very stout, and very extensively branched. From these to the most delicate plant there is a constant assuming of higher stations, according to the ascending degrees of refinement. Yet there is much variegated foliage, and many useful and tender plants existing upon its surface.”—i. 203.

Vegetation of Mercury.—“The vegetable productions of this planet are not very numerous, and are not so refined in composition as those upon other planets. There are but three general classes of plants, and from the lowest to the highest of these we find upon earth a correspondence. But as to form and height and beauty, they do not equal those of any other planet. The highest vegetable productions generally rise but a few inches above the surface. There are no flowers, nor foliage, nor trees, that cast pleasing shades: but all vegetable forms are full and gross, rising but little from the surface of the ground.”—i. 206.

However firm my conviction of Mr. Davis’s extensive reading in theology, ancient history, and all the subjects connected therewith, I feel disposed to give him credit for profound ignorance of botany: there is internal evidence of this: he may have rapidly skimmed over the introductory works of compilers, caught at the meaning of terms, and learned by rote without attempting to understand certain of the more ordinary definitions; but as to botanical knowledge, properly so called, it seems next to impossible to imagine a more complete absence of everything worthy the name. A little knowledge, a little study, might have given a degree of plausibility to the affair: like his countryman who detailed Sir J. W. Herschell’s zoological researches in the moon, he should have tutored himself into the capability of giving an air of truth to the heartless hoax he has attempted: he should have taught himself the art of giving his revelations the appearance of being genuine.

My specimens of the work are not chosen on account of the superlative presumption which they display, for in this respect they do not stand out at all remarkably from the great mass of speculations contained in the two volumes, but they are, or profess to be, purely botanical, and therefore I select them for exhibition in a purely botanical magazine. Let us suppose the planets in question could really be visited by a botanist, and that the undertaking had fairly been accomplished; what should we say to any one who gave the result of his discoveries in such unintelligible jargon as this? "The fourth class [of plants] approximates still nearer to animal existence. Being more perfect in composition than the others, it presents a variegated foliage, the extracts from which enter essentially into the forms of the first animals." The veriest tyro in botany knows that the more perfect a plant the less it approximates to an animal; and that variegated foliage indicates disease rather than perfection; and how the extracts of variegated foliage enter into the form of the first animals I cannot conceive. In fact, the entire passage is neither more nor less than a number of words purposely jumbled together to mystify the reader, and perfectly incapable of conveying an idea to the mind of man. When I lately quoted, in another place, some of the choicest morceaux from Oken's twin publication, a champion, willing to exonerate the German, suggested that the English translator had mistaken his meaning, —a reasonable suggestion, for Mr. Tulk were gifted with superhuman powers could he understand the original: no such plea, however, can be adduced in the present instance; the volumes come before us in the language in which they were written; and however the transcendentalists or their abettors may wince, they cannot evade the fact, that the passages are quoted precisely as originally written, without abbreviation or alteration, and in every instance entire, and not piecemeal. Some two hundred pages are occupied in what might be called travestied science, after the fashion exhibited above, in the passage about 'the extracts of variegated foliage entering essentially into animals;' as no portion of this is either botanical or logical, or can by any possibility be true or instructive, I pass it over in silence. Then from such premises comes the conclusion, thus ushered in.

"I now descend to the birth of *mythological theology*—which theology is at the present day obscuring the highest and purest principles of the internal nature of man, destroying all elements of true and natural morality, and absolutely driving men into every species of vice, folly, disunity of interests and consequent wretchedness."—i. 377.

A pleasant picture of Christianity indeed! a mythological theology

obscuring our purest principles, destroying morality, and driving us into every species of vice ! Self-respect would have pointed out to any ingenuous and sincere author two postulates for the reception by thinking men of such a sweeping anathema against religion as this : *first*, the preceding argument should have led to the inference ; *secondly*, an appeal to the present state of the Christian world should have supported the assertion ; whereas this anathema against Christianity, placed in the middle of the book, and even cherished as its heart of hearts, neither follows from any passage that has preceded, nor is supported by anything that follows.

Andrew Jackson Davis, the clairvoyant, certainly never heard of such a science as logic, otherwise he assuredly would have seen that his premises do not induce his conclusions : it is very easy to write the assertion, that Christianity is a fable, and leads to vice ; but in this age there is what Mr. Davis would himself call a strong prejudice in favour of Christianity, and before giving up that prejudice at the beck of a juggling clairvoyant, we want logical proof of the soundness of his assertions : we refuse to take his *ipse dixit* on points where it is so self-evident that he has trusted to the resources of a fertile imagination, uncurbed by the reflective power required to preserve accordance between the component parts of his wondrous tale.

In order to carry out the deception, he should have made the parts consistent with the whole, and the means accessory to the end. As I wish to render myself intelligible to Mr. Davis's admirers, the latter position may be illustrated thus. Accomplished novellists (Mr. Davis *is* a novelist, though not accomplished in his craft), desirous of disposing of any of their heroes by death, employ certain means which would, if applied to the human body, cause death : I recollect Moore uses a tank of *aqua fortis* ; Dickens, an express train, &c. ; and if we turn over the pages of Shakspeare, swords, daggers, and poison, old age, and other obvious *causes of death* are introduced to cause death ; but our 'Poughkeepsie Seer' kills the Christian religion without even the flourish of a weapon more fatal than the extracts of variegated leaves, or the assertion that men in the planet Jupiter walk on all fours.

I have thought it right to relinquish the editorial *we*, and to avow myself the author of these observations. I am perfectly aware that different opinions are entertained on all subjects ; and Vestigianism, Okenism, mesmerism, form no exception ; these have their several advocates, of whom I am not one, and wish to announce that I am not ; but I claim for these remarks no fictitious importance on ac-

count of my editorial capacity: they are simply the opinions of an individual, and their weight and value must be in exact accordance with their justice and truth. I acknowledge I feel very strongly on the subject, and doubtless express myself strongly, but the occasion seems to require it; and I hope I have not exceeded the bounds of fair criticism in expressing my unqualified disapprobation of a work that I believe to be false in its assertions, false in its reasoning, and false in its conclusions.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
May 16th, 1848.

Occurrence of Thlaspi perfoliatum near Cheltenham.

By CHARLES PRENTICE, Esq.

ALLOW me to correct an error which I rather hastily inserted in the July number of the 'Phytologist,' 1847. *Thlaspi perfoliatum*, L., is there stated to be no longer found at Naunton Seven Springs, near Stow-on-the-Wold. I was too late for it last year, but being earlier this, I gathered several specimens of this very rare and interesting plant.

C. PRENTICE.

1, Oxford Place, Cheltenham,
May 17th, 1848.

Notice of 'The Flora of Leicestershire, according to the Natural Orders; arranged from the London Catalogue of British Plants. Leicester: printed by John S. Crossly. 1848.'

THE botany of Leicestershire was very imperfectly known before the Rev. Andrew Bloxam's publications on the subject,—originally by partial lists and localities in the 'Magazine of Natural History,' and eventually in the improved form of a general list for a portion of the county, given in Potter's 'History of Charnwood Forest,' about half a dozen years ago; additions and corrections having since been occasionally made to our knowledge of Leicestershire plants. We are not aware that Mr. Bloxam's general list was published apart from the quarto 'History;' so that the little work now before us, in 86 duodecimo pages, may be considered to fill a vacuum in the literature of local botany.

The 'Flora of Leicestershire' appears in form of an arranged cata-

logue of species, with their usual situations of growth, indications of frequency or rarity, and localities for the less common species. The text is printed only on the alternate pages; thus leaving the opposite pages blank, for "additions and memoranda,"—a good mode of printing a local list. The arrangement by natural orders is followed, and both arrangement and nomenclature are made to correspond with the 'London Catalogue of British Plants,' published for the Botanical Society. This course is a judicious one. Local lists should always be thrown into the natural arrangement; and their usefulness is always increased by correspondence with some well-known standard. Whatever difference of opinion may exist about species and varieties, about generic and specific names, in which no two of our general floras do correspond with each other, the wide circulation of the 'London Catalogue,'—the countless specimens distributed to herbaria, British and foreign, with labels corresponding to that Catalogue by their names and numbers,—the ease with which any moderately good botanist may certainly know and identify the species or variety intended by the nomenclature of the same Catalogue,—all strongly recommend its use as a standard, calculated to prevent misapprehension and error, through variations of nomenclature. Moreover, the 'Cybele Britannica' is arranged in close conformity with the 'London Catalogue,' and may be regarded as the generalized and condensed summary of all the local lists or floras; so that the adoption of the same arrangement must give increased value to any later published flora, by facilitating comparisons between the local and the general, the single and the aggregate, the details and the summaries.

Unfortunately, there are some omissions which detract from the usefulness and value of the 'Flora of Leicestershire,' and which it would be well for the author to supply, by giving the needful explanations in the pages of the 'Phytologist,' if it should be found now too late to add an explanatory sheet to the printed volume. We see, for instance, only the name of the printer, as above indicated, on the wrapper and title; and the public is thus left uninformed whether or not the work is a published one; and, if so, where and from whom it can be purchased. It must be almost needless to observe, that every published work ought to have the name of a London publisher on its title-page. The volume is anonymous, which no scientific work should be; and less than all should a work be published anonymously, which is simply a list or record of stated facts. As no authority is given with the localities enumerated for the rarer species, it remains doubtful whether they are set forth on the individual credit of the anony-

mous author, or whether they are quoted from other sources; and in either case they are at present without warranty for their truth in a scientific light. Further, certain signs are employed, as a note of interrogation following a specific name, and an asterisk prefixed to a locality; and as no explanation of their uses is given, they can convey no clear meaning to the reader.

These omissions are the more to be regretted, because, while the list of plants bears internal evidence of general accuracy, there are still some exceptions to this, which unavoidably lead to distrust. For instance, we find the maritime *Glaucium luteum* located on "Bardon hill, and other forest hills;" which appears a very unlikely habitat.* "Subularia aquatica?" and "Myrrhis odorata?" are thus interrogatively enumerated in the list, without locality or any sort of remark in qualification or explanation. Localities are given for *Œnanthe pimpinelloides*; but probably *Œ. Lachenalii* of the 'London Catalogue' was intended, as the latter species has been wholly omitted, although certainly found in the county, and in various localities; while the true *Œ. pimpinelloides*, if found at all, must be quite a recent discovery.

If the author of the 'Flora of Leicestershire' will lay aside the anonymous mask, and give the necessary explanations on the points we have mentioned, the volume may then be safely recommended, as a serviceable contribution to the records and the literature of British botany.

C.

Notes on Shropshire Rubi. By the REV. W. A. LEIGHTON, B.A.,
F.B.S. E. & L.

(Continued from page 76).

7. *R. corylifolius*, Sm. & Bab. Syn.

The plants which may be comprehended under this species, as defined in Bab. Syn., appear to arrange themselves into two groupes, which, from the peculiar colour of the barren stem, may be called the *green* groupe and the *dark purple* groupe. Each of these groupes contains two forms, so that four different varieties may be enumerated: α . and β . being comprised in the green groupe, γ . and δ . in the dark

* I learn from the author that this is an error, and the name consequently must be erased. I am not, however, informed what plant was intended.—*E. N.*

purple one. α . and β . have much of the aspect, generally speaking, of the suberect brambles; γ . partakes of the appearance of *R. discolor*, and δ . approaches *R. cordifolius*. These varieties, although anastomosing with each other in one or other of their characters, are nevertheless capable of being clearly distinguished by others.

In the present incipient state of our knowledge of this genus, I shall venture to give to the student a detailed description of these varieties, although at the risk of being accounted tedious and guilty of vain repetitions. And I am the rather led to adopt this course from the difficulty there is very frequently in such a variable genus as the present, of clearly comprehending what is intended in the usual short characters, when considered apart from and without having the actual specimens under view.

* GREEN GROUPE.

Var. α . *sublustris*. Barren stem arching, nearly or quite round and glabrous, green, and slightly tinged with reddish purple; prickles uniform in size, moderately abundant, slender, much longer than their short base, somewhat scattered, generally straight, or nearly so, sometimes a little declinate, or even decurved, green, or if in the sun, reddish purple at the base, yellow at the point; leaves digitate, 5-nate, on stout petioles pubescent with close-pressed scattered white shining hairs, armed with short decurved not very numerous prickles; leaflets coriaceous, plane, terminal one on a rather long stalk, intermediate ones on short stalks not above $\frac{1}{4}$ th the length of that of the terminal leaflet, lowermost quite sessile, overlapping the intermediate pair, dark bright green and nearly glabrous, or with only a few scattered hairs above, under side clothed with dense whitish shining hairs and a dense whitish velvety tomentum, veins prominent, hairy, midrib armed with a few weak hooked prickles; terminal leaflet rotundato-cordate, acuminate, coarsely but very sharply and unequally crenato-cuspidato-serrated, intermediate leaflets broadly ovato-oblong, lowermost rather small and oblong; stipules lanceolate, smooth or nearly so on both sides, hairy on the margins; flowering stem roundish, very slightly angular, with scattered whitish pubescence below, increasing upwards into a short dense hoary close-pressed tomentum; leaves 3-nate below, upper ones large and simple, often lobed, not continued to the extremity of the panicle; panicle compound,

leafy below, naked above, branches loose, ascending but spreading, more or less cymose, the extremity beyond the leaves dense and crowded, pubescent and hoary; the secondary branches densely tomentose and hoary. From the axils of the two lower leaves generally proceed long branches; prickles few, slender, straight, more or less declinate, those on the rachis chiefly confined to the upper portion of the internodes; the secondary branches destitute of prickles, or nearly so, those of the pedicels few, slender, small, scattered, straight and slightly declinate; sepals clothed on both sides with a dense white hoary tomentum, without prickles, broadly ovate, cuspidate, the point varying in length, strongly reflexed in fruit; petals white; fruit black.

HAB. — Hedges between Uffington and Atcham; also between Atcham and Preston Boats; near the Flash, and near Sutton Spa, all in the neighbourhood of Shrewsbury. Codsall Wood and Albrighton, near Shiffnall, all in Shropshire.

I base this variety on *R. affinis*, γ . of Fl. Shropshire, 226, which must be referred here as a synonym. Mr. Lees has communicated to me a specimen of *R. sublustris*, Lees in Steele's 'Hand-Book of Botany' (collected at Temple Langhern, Henwick, near Worcester), which, on the label attached, he identifies with *R. affinis*, γ . Fl. Shropshire. It seems generally referrible here; and as I am anxious to avoid the addition of new names in a genus already encumbered with names, I venture to adopt his name *sublustris* for this variety. *R. corylifolius*, gathered at Twycross, Leicestershire (No. 5, Bloxam's Fasciculus), ranges here also.

Mr. George Jordon, of Bewdley, has sent me a plant gathered by himself in the Shropshire part of Wyre Forest, which has the terminal leaflets of the barren stem excessively large and lobed, and sometimes with a distinct leaflet at the base, thus forming an approach to a 7-nate leaf. The panicle is full two feet long. This is, I presume, the *R. sublustris* γ . *grandifolius* of Lees in Steele's Hand-Book. From its general characters I should refer it to this variety, unless it be of sufficiently common occurrence to render it necessary to retain it as a distinct variety, when of course Mr. Lees' name *grandifolius* would be very characteristic. Like all the plants of the present variety, it has a most noble and beautiful appearance.

Var. β . — Barren stem arching, subangular, angles rounded, glabrous, more or less glaucous, green, and slightly tinged with reddish purple; prickles uniform in size, confined to

the angles, few, strong, springing from an extended base, which equals the length of the prickles, straight, slightly decurved towards the points, reddish purple at the base, yellow at the point; leaves digitate, 5-nate, on stout petioles pubescent with close-pressed whitish shining hairs, armed with stout hooked prickles; leaflets coriaceous, plane, terminal one on a short stalk, intermediate on very short stalks, lowermost quite sessile, overlapping intermediate pair, which also overlap the terminal leaflet, dark bright green, with few scattered hairs above, underside clothed with whitish shining hairs and a dense thick almost woolly tomentum; veins prominent hairy and tomentose, midrib armed with a few hooked prickles; terminal leaflet cordato-ovate, acuminate, sharply and less coarsely but similarly serrated to the last (α), intermediate ones ovate, lowermost oblong, the proportion between the leaflets more uniform than in the last variety, in which the lowermost leaflets are comparatively very small. Stipules linear-lanceolate smooth except on the margins; flowering stem somewhat angular, with scattered whitish pubescence below, increasing upwards especially on the panicle into a short dense hoary close-pressed tomentum; leaves large, 3-nate; panicle consisting of two or three branches from the axils of the 3-nate leaves as long or longer than the internodes crowned with a small dense naked cyme of flowers, the extremity beyond the leaves conglomerated into a similar but much larger dense and crowded naked cyme, pubescent and hoary; prickles few, rather stout, straight and declinate, chiefly located on the upper portion of the internodes, the cymose extremity of the panicle being nearly destitute of prickles, or only with a few slender ones scattered here and there; sepals broadly ovate, cuspidate, clothed on both sides with dense white hoary pubescence and tomentum, reflexed in fruit, destitute of prickles; petals white; fruit black.

HAB.—Hedges near Shrewsbury.

This variety is based on a portion of the plants comprehended under the second form of *R. rhamnifolius* of Fl. Shropsh. 228.

I presume the plants noted under *R. corylifolius*, Obs. 3, in Bab. Syn., are referrible here.

** DARK PURPLE GROUPE.

Var. γ . ——— Barren stem arching, angular, angles rounded,

nearly or quite glabrous, very glaucous, dark purple and green; prickles uniform, numerous, chiefly but not entirely on the angles, strong though slender in appearance, nearly or quite horizontal or at right angles to the stem, arising from a dilated base, shorter than their length, with minute stellate tufts of hairs, dark purple; leaves digitate, 5-nate, on rather shortish petioles pubescent with short close-pressed scattered hoary hairs, armed with stout, declinate, moderately decurved prickles; leaflets rather thin, slightly coriaceous, plane, terminal one on a moderately long stalk, intermediate on very short ones, lowermost quite sessile and overlapping the intermediate pair, dark dull green, nearly glabrous above, underside clothed with very short close-pressed whitish shining hairs and dense whitish tomentum, soft but scarcely velvety, veins prominent hairy, midrib with few very weakly prickles; terminal leaflet rotundato-ovate, acuminate, sharply and irregularly crenato-cuspidato-serrated, intermediate and lowermost oval though differing in size, dilated at the lower side; stipules hoary and hairy especially on the margins; flowering stem angular, growing in a zigzag way, with hoary pubescence increasing upwards into dense hoary tomentum; leaves 3-nate below, simple above, not continued to the extremity; panicle similar in general character to that of var. β . densely hoary, almost of a dusty appearance, with a few glands; prickles rather more numerous, very long and slender though strong, straight, declinate, those on the rachis chiefly but not exclusively located about the upper portion of the internodes and joints, scattered more over the whole internodes rather increasing in length upwards as far as the naked extremity of the panicle; the secondary branches and pedicels with slender long scattered declinate prickles; sepals clothed on both sides with dense white hoary tomentum, broadly ovate, cuspidate, strongly reflexed in fruit. A few glands may be detected on the outside and a weak prickle or two at the base; petals white and pink; fruit black.

HAB.—Hedges near Shrewsbury.

This variety is founded on a portion of the plants included under the second form of *R. rhamnifolius* of Fl. Shropsh. 228. The specimens of *R. corylifolius* given in the 'Fasciculus of Shropshire Rubi,' belong to this variety.

I venture to hazard the conjecture that this variety is the plant

represented in E. Bot. 827, and intended by Smith in E. Fl. ii. 409, and Fl. Br. ii. 542. Mr. Babington, who has seen the corylifolius specimen in the Smithian herbarium, must decide this point. If it be, the name *Smithii* would be an appropriate one for this variety.

Judging from an indifferent specimen from Mr. Lees, I incline to think that *R. sublustris*, γ . *cænosus* of Lees in Steele's Hand-Book is referrible to this variety. Its chief peculiarity appears to consist in an excess of hoariness which extends partially even to the barren stem. Mr. Lees' remark respecting it is, "this var. often appears as if dusted over with some farinaceous substance — indeed, 'white as a miller.'"

Var. δ . *intermedia*. Barren stem arching, angular, glabrous except a very few stellate tufts of hairs on the prickles, dark purple, slightly glaucous; prickles nearly uniform, very numerous, scattered, not confined to the angles, strong and very sharp, slender, horizontal, longer than the dilated base, dark purple; leaves digitate, 5-nate, large, on long stout petioles, slightly hoary, armed with numerous strong decurved stout prickles; leaflets thin, plane, terminal one on a moderately long stalk, intermediate pair on very short stalks, lowermost quite sessile and overlapping intermediate ones, dull dark green and glabrous on upper side, underside pale green, with soft scattered shining hairs, but destitute of tomentum, though with a good magnifier the incipient rudiments of tomentum may be discerned; veins very prominent, midrib armed with short stout decurved prickles; terminal leaflet rotundato-cordato-ovate, acuminate, very coarsely and irregularly crenato-cuspidato-serrated, intermediate ones broadly oblong, lowermost small in proportion, oval, both pairs dilated in their lower portion; stipules narrow, linear-lanceolate, margins hairy; flowering stem angular, zigzag, slightly hoary with minute stellate clusters of white hairs below, more so upwards, with a few scattered dark purple stipitate glands; leaves large, lower 3-nate, upper simple and large, not continued to the extremity; panicle composed of two or three elongated axillary branches, each bearing a small cymose head of flowers, the extremity with a large terminal cymose naked rather loose cluster of blossoms; secondary branches hoary and glandular; prickles numerous, strong, straight, declinate and slightly curved, those of the rachis most numerous and chiefly clustered on the upper portion of

each internode, decreasing in number and becoming scattered below, those of the secondary branches and pedicels smaller, similar in form and direction, tolerably numerous and scattered, with a few dark purple stipitate glands interspersed; sepals clothed on both sides with dense white tomentum, ovate, cuspidate, reflexed, with a stray gland or two, and a weak prickles or so at the base; petals ———; fruit black.

This variety comprehends the plants from Crowmerle, near Shrewsbury, included in *R. rhamnifolius*, second form, Fl. Shropsh. 228, and mentioned under *R. cordifolius*, Obs. 2, in Bab. Syn., and of which Esenbeck writes (*in lit.*) “*R. rhamnifolius*, *W. & N.*, se rapproche du *R. cordifolius* étant une variété de nôtre espèce que je tiens pour bonne espèce. Aculei in vestris magis recti sunt, in nostratibus tantillum recurvi.”

For the facility of comparison I subjoin the following brief distinctive characters of the four varieties above described.

α. sublustris. — Stem round, green; prickles slender, straight; leaves coriaceous, terminal one on long stalk, rotundato-cordate, coarsely crenato-cuspidato-serrated, whitish, tomentose, velvety beneath; flowering stem straightish, loose, cymose; prickles of rachis few, slender, declinate; secondary branches nearly without prickles.

β. ——— Stem subangular, green; prickles strong, straight, slightly decurved towards the points; leaves coriaceous, terminal one on short stalk, cordato-ovate, sharply less coarsely crenato-cuspidato-serrated, whitish, tomentose, woolly beneath; flowering stem straightish with a dense terminal cyme; prickles of rachis few, stout, declinate; cymose extremity nearly without prickles.

γ. Smithii ? — Stem angular, dark purple; prickles strong, horizontal; leaves sub-coriaceous, terminal one on moderately long stalk, rotundato-ovate, finely crenato-cuspidato-serrated, whitish tomentose, soft, not velvety beneath, lowermost dilated in lower half; flowering stem zigzag, with dense, terminal cyme; prickles of rachis numerous, long, slender, declinate; cymose extremity prickly and glandular.

δ. intermedia. — Stem angular, dark purple; prickles strong, horizontal; leaves thin, terminal one on moderately long stalk, rotundato-cordato-ovate, coarsely crenato-cuspidato-serrated, pale green, hairy, soft beneath, lowermost dilated in lower half; flowering stem zigzag, lower branches elongated and spreading, with loose terminal cyme; prickles of rachis numerous, strong, horizontal or declinate; cymose extremity prickly and glandular.

The distinguishing marks of this species appear to be the sessile

overlapping lowermost pair of leaflets of the barren stem ; the zigzag growth of the flowering stem ; the panicle consisting generally of two or three elongated axillary branches, with a dense crowded terminal cymose extremity ; the congregation of the prickles on the upper portion of the internodes of the rachis, and the peculiar appearance assumed by the flowers in consequence of the stamens and pistils becoming persistent after the fall of the petals, resulting from the fruit being very generally abortive or consisting only of two or three large grains.

[To be continued].

W. A. LEIGHTON.

Luciefelde, Shrewsbury,
May, 17th, 1848.

List of Habitats of Plants recorded in MS. in a Copy of Blackstone's 'Specimen Botanicum.' (Communicated by W. PAMPLIN, Esq.)

I SEND you the following extracted from an interleaved copy of Blackstone's 'Specimen Botanicum,' London, 1745. I think these old MS. records of localities of interesting plants are generally speaking acceptable to your readers, as it enables those who live in, or who may have the opportunity to visit, the neighbourhood indicated, to search for them, and many times too with good success, as I have often in years past proved to my no small delight : for instance, I well remember when I first noticed the *Geranium Robertianum* flore albo in the lane between Chiselhurst and Bromley, where it is recorded as growing in the time of Ray, and many other instances.

The accompanying habitats are inserted, neatly written, in an interleaved copy of Blackstone's 'Specimen Botanicum' in my possession. The volume formerly belonged to Stainsby Alchorne, Assay Master of the Mint, the friend and cotemporary of Hudson, Warner and Jacob ; it is most probable that these notes are his own (Alchorne's).

Alchemilla vulgaris. In a wood just below Chesham Bois church, Bucks, 1752.

Alsine palustris fol. tenuiss. (Spergula nodosa). Uxbridge Moor, abundantly.

Althæa officinalis. By the Thames side, at the Isle of Dogs, just before you come to the ferry for Greenwich.

Asplenium Ceterach. On a wall at Riverhead, near Sevenoaks, Kent, 1748.

Balsamine lutea seu *Noli-me-tangere* (*Impatiens*). Near the rills of water in the grounds about Bath, particularly near Bathwick church.

Bupleurum minimum (*B. tenuissimum*). By the road-side at the foot of Shooter's Hill, sparingly, 1751.

Campanula cymbulariæ foliis (*C. hederacea*). In several bogs on St. Leonard's Forest, near Horsham, and about Crawley, in Sussex, abundantly, 1750.

Campanula esculentæ facie ramis et floribus patulis, Hort. Elth. (*C. patula*). In a wood called Ulberry Hill, about a mile from Worcester.

Cardamine flore majore (*C. amara*). By the river side behind the town, at Lewisham.

——— *impatiens*, Ger. Em. 260, fig. bona. By the ditch sides in Hell Brook, at Parson's Green, Middlesex, plentifully.

Carduus stellatus (*Centaurea calcitrapa*). By the road-side at Bethnall Green, and between Lewisham and Sydenham.

Caryophyllus arvensis hirsutus flore majore (*Cerastium arvense*?) By the Thames side, half a mile beyond Kingston, in the road to Cobham, plentifully. Mr. Cawte.

——— *minor*, &c. (*Dianthus deltoides*). On Dubbar's Hill, Croydon, plentifully, 1748.

Chamædrys sativa sive vulgaris. In a field facing the upper church-yard at Wandsworth.

Cynoglossum minus folio virente (*C. sylvaticum*). In Hatfield Park and thereabouts, very frequent, 1751; also near Chinckford by Woodford, &c. (This plant, which is not very general, I observed in plenty upon the hedge-banks at intervals all the way from Waltham Abbey, through Sewardstone and Chinckford this present May (1848). I remember to have seen it about twenty years ago also, very near into Walthamstow, but I think it has of late disappeared from there. —W. P.)

Cyperus longus inodorus sylvestris. On Hinton Moor, near Cambridge.

Dryopteris, Lob. Ic. 814 (*Asp. Thelypteris*). In the moist meadows at North Cray, Kent, plentifully.

Eryngium Mediterraneum sive campestre. On the coast about Crimhill passage, where is the ferry over from Plymouth to Mount Edgecombe, in Cornwall

Filipendula vulgaris offic. Not far from the Plough, at Clapham Common.

Filix saxatilis caule tenui fragili, Raii Syn. edit. 2, p. 50, No. 7. Plentiful on Hampton cliffs, near Bath.

Fumaria alba latifolia, Park. In the hedges near Bonner's Row, Bethnal Green; and again between Greenwich Park Wall and Charlton Church.

Geranium saxatile (*G. lucidum*). About Lexden, a mile before you enter Colchester from London.

Graminifolia palustris repens, Raii Syn. (*Pilularia*). On Enfield Chase, half a mile from the town towards Barnet. On a moorish ground a mile and a half before you come to Uxbridge, close to the right hand side of the road.

Gramen cyperoides majus præcox. In the wet part of Battersea Meadow.

————— *spicis parvis longissime distantibus*, Raii Syn. In a wood just below Chesham Bois Church, Bucks, plentifully, 1752.

————— *pratense paniculatum medium*. On the walls at Eltham leading to the old Palace.

Helenium (*Inula Helenium*). By the chalk-pit at Gerards Cross, Bucks.

Helianthemum vulgare petalis florum perangustis (*H. surrejanum*). By a chalk-pit on the right hand of the road between Eltham and Farningham, in Kent.

Helleborine palustris (*Epipactis palustris*). Abundantly by the roadside a mile or two before you come to Hemel Hempstead from Watford, Herts.

Herba Paris (*Paris quadrifolia*). In a wood near Henden beyond Hampstead. In a copse near Chiselhurst.

Lentibularia (*Utricularia vulgaris*). In the green lane leading from Newington to Southgate, not far from the sluice which opens the New River into the New Cut.

Lilium Convallium (*Convallaria majalis*). In Bishops Wood and the heath by Hampstead. (Still grows there in small quantity. —W. P.)

Lychnis sylvestris flore albo minimo. In a field near Weybridge Church, called Sadlers, plentifully in July, 1747.

————— *quæ Saponaria vulgo* (*Saponaria officinalis*). Near Kingsland Turnpike.

Medicago echinata minima. Abundantly on the sandy ground within the beach below Sheerness; Mr. Rand, 1722; again in the

way from Sheerness to Minster, 1768. (It would be well to examine these localities again, for the plant being so small might be very easily overlooked, and it is not at all likely that a plant propagating itself so freely by seed would cease to exist there.—W. P.)

Mentha piperita. In the Green Lane to Southgate from Newington before you come to Hornsey Wood.

Menthastrum spicatum folio longiore candicante. By the rill of water at the roadside the beginning of Lewisham town; and again in the church-yard at Hornsey, on the north side.

Myagro affinis planta siliquis longis. In a field called Sadlers, near Weybridge Church; also near Esher Church.

Myrrhis officinalis. I gathered it in May, 1746, in Bocking church-yard, in Essex, where there is a good deal of it. They call this plant in Essex sweet fern.

Myosurus. On Epping Forest, between Woodford and Chinckford.

Ophioglossum vulgare. In Hackney Marsh.

Orchis Nidus Avis. In a wood about one mile from Bromfield as you go to Springfield, Essex, sparingly, 1746.

——— *alba bifolia minor.* In Cane Wood, and on the heath by Hampstead.

Orchis barbata odore Hirci brevior latioreque folio (O. hircina). We found it as we went up a lane on the left hand going down the town (Dartford) from London to the church, a little before you come to the church.

——— *odorata moschata sive Monorchis.* By the side of Madam's Court Hill, in the road to Tunbridge, and on the chalk hills between Rochester and Maidstone.

——— *sive Cynosorchis minor Pannonica (O. ustulata).* In the chalk pit near Stanhill, Dartford, but not plentifully, 1746.

——— *spiralis alba odorata.* On Enfield chase, near the town, and by the road-side near the tenth mile-stone on Epping Forest, by the Bald Stag.

Osmunda regalis. On the low part of Hampstead Heath, and on Epping Forest, near Chinckford, but in both places sparingly.

Pimpinella saxifraga major umbella candida. By the paper-mill just below the Abbey Church, St. Albans, also about Chesham, abundantly, 1748.

Plantago aquatica minima Clusii (Limosella aquatica). In the Back lane to Southgate, before you come to the turning for Hornsey Wood.

——— *aquatica stellata (Alisma damasonium).* By Larimer's

Pond, near Newington Butts, and on Putney Heath, also in the back lane to Southgate and on Epping Forest.

Polypodium murale pinnulis serratis. On Mount Edgecombe, behind a seat that commands a view of Plymouth Harbour.

Prunus sylvestris major (?). In the hedges near Buckingham.

Rapunculus esculentus vulgaris. About Esher, in Surrey, particularly as you go to Haversham (Hersham), plentifully.

Reseda crispa gallica, Boccone. Between Northfleet and Gravesend, and all over the Isle of Thanet; likewise near Guildford. N. B. The Reseda which grows on Tilbury Fort walls is the Reseda maxima of Casp. Bauhin.

Rubus Idæus. In several woods about Chesham, Bucks, plentifully, 1753.

Saxifraga alba radice granulosa. In St. George his fields, near London, and in Battersea meadows.

Serpyllum citratum. Ger. Em. 571. On Oliver's Mount, nigh Uxbridge, not plentifully, 1746.

Sium arvense sive Segetum. In the hedges nigh Chinckford church, Essex, plentifully (and grows there to this day, as I have proved this present May, 1848.—W. P.)

Solanum lethale (Atropa Belladonna). In the old chalk pit at Gerard's Cross, 1746; and in Hatfield Park, Herts, 1751, plentifully.

Sonchus tricubitalis folio cuspidato. By the Thames' side below Greenwich Hospital.

Stachys folio densiore candicante serrato et acuto major. By the road-side about Whitney, in the way from Oxford to Burford.

Turritis vulgator. By the road-side just above Redhill, beyond Uxbridge, plentifully, 1746; also between Lewisham and Bromley.

[To be continued].

WILLIAM PAMPLIN.

Notice of 'The Physical Atlas, a Series of Maps illustrating the Geographical Distribution of Natural Phenomena. By HENRY BERGHAUS, LL.D., and ALEXANDER KEITH JOHNSTON, F.R.G.S. Edinburgh: Johnston. London: Saunders. Glasgow: Lumsden.'

THIS elaborate work is now complete in ten numbers, and conveys to the mind a greater quantity of information than could be gained in any manner equally expeditious. As a glance at a map gives a

more complete and correct idea of the figure of a continent or island than could be expressed in words, so do these maps of facts give a more complete insight into physical phenomena than could be gained by any amount of reading. Where the body of facts is so immense, and the description of information so diversified, it follows almost as a matter of course that errors should occasionally creep in and omissions now and then occur. A few such we think we could point out, but we notice this simply for the sake of asserting that a careful and critical examination of several of the maps in detail has convinced us that the greatest care has been taken in making them correct and complete: and we have great pleasure in pronouncing the 'Physical Atlas' an invaluable boon to the man of science; and in recommending it most cordially to the readers of the 'Phytologist.'

At the present moment, when clairvoyance, hypothetical floras, physiophilosophy, and vestigianism have induced many of our younger and weaker-minded botanists to crave rather for fictitious than real wonders — when a kind of diluted philosophy, a loose and vague generalization has been partially adopted as an easy substitute for scientific proficiency,—it is most delightful and refreshing to meet with a work in which truth takes its proper station, and in which no kind of quackery is allowed to mingle. We quote the prospectus in order to give a better idea of the undertaking than any description we could draw up for the occasion, and we advisedly pronounce that the work itself fully bears out all that the publishers say in its favour.

"For imparting information, or for retaining what may already be possessed, those means are calculated to be most successful which readily commend themselves to the eye. Hence ordinary Geographical Maps convey more rapid and accurate knowledge regarding the positions of places, and their relative distances from each other, than can be done by the most elaborate verbal description; but the inventive genius of Professor Berghaus has imparted a significance to symbolical representation, transcending all the anticipations which have been formed regarding the capabilities of the art. The contents of the many volumes which formerly were the sole depositories of information regarding the different kingdoms of nature, have been condensed and reproduced in a graphic shape, in his Physical Atlas, with a conciseness, precision, completeness, and promptitude of expression altogether unattainable by any agency previously employed. And not only has this been the case in the reproduction of the reading matter contained in books, but the process has been extended to the transmutation of

the masses of statistical data expressed in the Tabular enumerations of works of reference. The elegant substitute of Linear Delineation registers the most complicated results in a perspicuous form, and affords inexhaustible facilities for recording the continued advances of science. In the emphatic language of the late President of the Royal Geographical Society, 'Professor Berghaus has made the progress of science visible'—he has mapped out the length and breadth of philosophic research, and shown what it has done, and what it has left undone, in expounding the physical constitution of the Globe.

"The Physical Atlas has been the labour of many years; and in addition to scientific qualifications of the highest order, and an intimate acquaintance with the writings and discoveries of Brewster, Sabine, Jameson, Whewell, Greenough, Humboldt, Von Buch, Arago, and other distinguished names in modern research, Professor Berghaus has had facilities for the accurate and extensive execution of the undertaking beyond what any other individual could be expected to possess. Geography forms a part of the course of education to all persons preparing for public service in Prussia; and with that sedulous attention to the cultivation of physical philosophy, which characterizes the German mind, the whole of the military force and mercantile marine of the Prussian Government are expected to report minutely on the geographical condition of every country which they visit; and from his position as Principal of the National Geographical Institute, the most valuable reports and surveys have been made under the special direction of Professor Berghaus, and with reference to the completion of his arduous task.

"In the 'National Atlas,' Mr. Johnston presented the British public with some specimens of this meritorious work, which had the effect of eliciting earnest requests from members of the Geographical Society, and other learned bodies, to publish an English edition of the whole; and in compliance with their wishes, this important publication is now about to be commenced. The documents, which will be found in another part of this prospectus, will evince the interest excited by the work, as well as authoritatively indicate the superior manner in which the present edition will be produced.

"A liberal selection from the designs and copious MS. and letter-press descriptions of Professor Berghaus will constitute the basis of the new Atlas—a copyright arrangement having been made with him for the purpose; but instead of being a reprint from the original plates, the Maps will not only be larger in size, and more complete, but will contain the latest corrections from his own hand; and in addition to

this, Maps on subjects not treated of by Professor Berghaus will be constructed by Mr. Johnston, under the superintendence of competent writers, in order that the whole may be in unison with the state of science in Britain up to the period of publication.

“No theories founded on mere hypothesis will be introduced. All the Maps, so far as can be ascertained, will embody the results of actual observation and experiment. Indeed, the plan of linear delineation provides, to some extent, a guarantee against crude speculation, as it compels all systems to assume a definite shape, readily susceptible of direct examination as separate truths, or relatively, as they are in consonance with cosmical laws universally admitted. There will, however, be introduced on all suitable occasions, such inductive data as seem to point at the solution of unexplained phenomena—a course, which, it is presumed, is not beyond the proper sphere of the work, and which may not be unattended with advantage to scientific inquiry.

“But the predominating rule, both in the selection and treatment of subjects, will be *utility*, in the widest sense of the term. The projectors do not wish to deal with science for abstract purposes; they wish to deal with it as developing the resources of Nature, and as guiding art in adapting these to the exigencies of Man. They, therefore, solicit attention to this Atlas, as a repertory of ascertained facts and principles, bearing directly on many of the most important departments of human occupation. To the political economist, man of letters, merchant, manufacturer, navigator, and tradesman, the work will be of great practical advantage; while to the professor and teacher it cannot fail to be of inestimable service, in materially facilitating the important business of education.”

K.

Notes on Shropshire Rubi. By the REV. W. A. LEIGHTON, B.A.,
F.B.S. E. & L.

(Continued from page 166).

8. *R. cordifolius*, W. & N.

The specimens of the ‘Fasciculus of Shropshire Rubi’ belong to the typical or cordate form of this species, as defined in Bab. Syn. and Manual.

R. affinis, β . Fl. Shropsh. 226, is the ovate or rhamnifolius form.

R. rhamnifolius, first form of that work, p. 227, is (in part) the cordate or typical form.

No. 7 of Bloxam's *Fasciculus* is identical with the plant given in the '*Fasciculus of Shropshire Rubi*;' so also is a plant communicated to me by Mr. Lees, gathered in "thickets in Birchin Grove, Broadheath, two miles west of Worcester," and which I suppose is the *R. cordifolius* of Lees in Steele's *Hand-Book*.

The distinctly stalked lower leaflets, which never overlap the intermediate pair, and which spread or are turned backward considerably, the stout red-coloured very angular and furrowed stem, with its very strong straight horizontal or declinate prickles, readily distinguish this from *R. corylifolius*; whilst the different cordate shape and toothing of the leaves and the scattered straight declinate prickles of the flowering stem, combined with its different panicle, separate it from *R. affinis*.

9. *R. discolor*, W. & N.

The *R. discolor* and *R. fruticosus* of Fl. Shropsh. p. 228 and 229 prove, as there conjectured, to be forms only of the same species.

The leaves of this species, which are indefinitely variable in shape, afford no good characters whereby to determine the varieties observed in Shropshire, whose distinctions may rather be grounded on the clothing of the barren stem, the shape and direction of its prickles, and the clothing and armature of the panicle and flowering stem.

Var. α . ——— Barren stem covered with minute stellate clusters of silky hairs, prickles confined to the angles, large, stout, very dilated at the base, straight and declinate, or curved and deflexed, clothed similarly to the stem; panicle white, tomentose and with long spreading hairs, prickles strong, tolerably abundant, decurved, silky with minute stellate clusters of hairs.

"No. 9, *R. fruticosus*" of Bloxam's *Fascic. Rub.* ranges here.

Var. β . ——— Barren stem nearly glabrous and glaucous, prickles large, stout, horizontal, straight; panicle white tomentose and much more hairy than in α ., prickles straight and declinate or deflexed.

The specimens in the '*Fasciculus of Shropshire Rubi*' belong to one or other of the above varieties.

Var. γ . ——— Barren stem with scattered weak spreading hairs, prickles very numerous, decurved, or straight and declinate; panicle white tomentose and very hairy, hairs long and patent, prickles declinate and decurved.

I here arrange "No. 11, *R. macroacanthus*, *W. & N.*, *γ. macroacanthus*, Bab. Syn., between Mancetter and Hartshill, Warwickshire," of Bloxam's Fascic. Rub.

Var. *δ. argenteus*. Barren stem with minute close-pressed silky shining hairs, prickles moderately strong from a broad base, subulate, straight, with stellate hairs; leaves cordato-ovate, with a long acuminate point, sharply finely and unequally serrated, glabrous above, white tomentose velvety beneath; panicle very tomentose and hairy, hairs short, prickles straight and declinate, long and slender.

Specimens of this variety are given in the 'Fasciculus of Shropshire Rubi.'

"No. 10, *R. discolor*, *lividus*, Bab. MSS., near Twycross, Leicestershire," of Bloxam's Fascic. Rub. has the barren stem angular, furrowed and glabrous, prickles with a very large dilated base, suddenly and peculiarly uncinatate; leaves large, terminal leaflet broadly oval acuminate doubly and coarsely serrated, glabrous above, white tomentose beneath; panicle with weak, straggling hairs below, tomentose and very hairy above, prickles very strong and uncinatate. This seems so very different from any of the other forms that it surely ought to be recognized as a distinct variety.

10. *R. leucostachys*, Sm. & Bab. Syn.

The species so named in the Fl. Shropsh. p. 230, seems to be a sad jumble, having, according to the authentic specimens now before me, been founded on two specimens named by Prof. Lindley *R. leucostachys*, but evidently referrible to *R. nitidus*, Bab. Syn., and one specimen identical with *R. leucostachys*, *β. vestitus*. I am not at present acquainted with any Shropshire plant corresponding with the true *leucostachys*.

R. leucostachys of Lees in Steele's Hand-Book is, according to specimens from Mr. Lees, identical with *R. nitidus* of Bab. Syn. and the 'Fasciculus of Shropshire Rubi.'

Var. *β. vestitus*, *Bell Salt*.

Specimens of this are given in the 'Fasciculus of Shropshire Rubi.' It is the *R. villicaulis* of Fl. Shropsh. p. 231, so named by Esenbeck. To the other characters by which this well-marked and not uncommon plant may be recognized I would add the following:—

On the flowering stem and panicle the prickles, which are straight and declinate, arising from a stout dilated purple base, frequently hairy, and elongated into a long slender yellow point, are very noticeable from their shining and polished aspect as well as their colour,

and are rendered more conspicuous by their issuing from the dense shaggy tawny white tomentum and hairs. They are also set on in a succession of irregular series; a series being comprised on each internode or division of the panicle: in the lower portion of which the prickles are shorter and smaller, but increase in size and length upwards to the next node or joint where they are longest, the longest prickle being not unfrequently located immediately opposite to the point from which the petiole of the leaf springs.

"No. 13 of Bloxam's Fascic. Rub., *R. vestitus*," agrees with our Shropshire plant, as does also Mr. Lees' *R. vestitus* in Steele's Hand-Book, according to specimens from him.

Var. γ . *argenteus*, *Bell Salt*.

Specimens gathered near Cophthorn, near Shrewsbury (some of which are given in some of the copies of the 'Fasciculus of Shropshire Rubi' as *β . vestitus*), have altogether a whiter softer closer-pressed tomentose appearance, with a looser and larger extra-foliateous panicle, the lower axillary branches of which are elongated, and the leaves are narrowed at the base, becoming in general shape rotundato-obovate, with less coarsely dentate margins. These, I presume, may constitute γ . *argenteus* of Bab. Syn. It should, however, be mentioned that I noticed that on the same bushes the usual form of *β . vestitus* was recognizable, and gradations from that variety into the present one were easily traceable. The prickles on the flowering stem and panicle are not rigidly straight and declinate as in *β . vestitus*, but curved and deflexed, though in similar, but more irregular series.

11. *R. Leightonianus*, Bab. Syn.

This plant, which is fully and accurately described by my friend Mr. Babington in his Syn. Rub., and which he was kind enough to name in honour of me, is destined to be degraded from that enviable post by my own hands, as the following observations will clearly prove that it has no claims whatever to rank as a distinct species, and cannot be retained even as a variety.

Having no authentic specimen in my herbarium of the plant gathered by Mr. Babington and myself at Haughmond Hill in September, 1837, I was for a long time completely ignorant of what plant was really intended. Never suspecting *leucostachys*, *β . vestitus* to be identical with it, I year after year searched Haughmond Hill unsuccessfully, and without finding any bramble which I could confidently say corresponded with the description in Bab. Syn. In 1847 Mr. Babington sent to me a specimen of what he considered *R.*

Leightonianus of his Synopsis, collected by himself "near Lyston, Llanwarne, Herefordshire, Sept. 14, 1847." The first glance excited recollections as of an old acquaintance, and I could not divest myself of the idea that it looked exceedingly like a very green state of leucostachys, *β. vestitus*. Soon afterwards, botanizing on the Wrekin mountain, in this county, I found in the moist shady woods at its base, near a little brook which runs between the Wrekin and Lawrence Hill, a weakly plant in some abundance, which appeared identical with the Herefordshire specimen sent as *R. Leightonianus* by Mr. Babington. I accordingly gathered specimens, and forwarded them to him, with expressions of my belief as to their identity with his *R. Leightonianus*, and of my conjectures that they were also identical with *R. leucostachys, β. vestitus*. Mr. B. confirmed their identity with *R. Leightonianus*, but met my difficulty as to their identity with leucostachys, *β. vestitus*, by the following note from his interleaved copy of his Syn. Rub., showing that similar doubts had at some time arisen in his own mind and been by investigation disposed of:—" *R. Leightonianus* is very like some states of *R. leucostachys, β.*, but differs by having unequal and scattered prickles on its barren stem, and the prickles on the petioles and midribs nearly or quite straight and slender, not strong and much hooked, as in that plant." This explanation did not, however, satisfy my mind nor remove my uncertainty, and so I set to work again. In the Weir Coppice, near Hookagate in the vicinity of Shrewsbury, *R. leucostachys, β. vestitus*, grows in some plenty, and I there set about to study the living plant. I soon found that on the main barren stem the prickles were in the upper and middle portion chiefly confined to the angles and equal in size, but on examining the lower part, the prickles were seen to be very unequal in size and scattered on all sides. Similar characters were noticed in the prickles on a strong lateral shoot which had been sent off from a main barren stem in consequence of the latter having been broken off early in the season. The prickles on the petioles and midribs seemed also very variable in form, ranging from nearly or quite straight to a hooked form, even on the same bush. The plant assumed a more or less green aspect as it was more or less in shade. Of all these variations I forwarded scraps for the consideration of Mr. B., and a day or so afterwards I posted off again to the Wrekin and spent several hours in tracing the gradations of the plant. In sunny and exposed situations *R. leucostachys, β. vestitus*, occurred of its usual size and of its commonly described aspect and character; but in the moist shady woods at the base of the hill it put on the *R. Leightonianus* or green

form, the whole plant weak, the prickles unequally scattered and slightly declinate, the leaves larger and rounder, thin and green on both sides. On ascending higher up the hill, still in the shady woods, but in a drier soil, the plant was in an intermediate state, rather stronger, but partaking much of the character and aspect of the *Leightonianus* form; whilst the under surface of the leaves, especially on the flowering stem, had acquired a whiter look, the prickles were confined to the angles, and those on the petioles more curved. On reaching, however, situations fully exposed to the sun, and uninfluenced by moisture or the shade of trees, the plant became truly *leucostachys*, β . *vestitus*.

The variations in the number and situation of the prickles on the barren stem, as noticed in the Weir Coppice, were here also confirmed.

These results quite convinced me, and I communicated them and my consequent convictions to Mr. Babington, who, after weighing them, coincided in thinking that *R. Leightonianus* could no longer be retained, but must be regarded as a state only of *leucostachys*, β . *vestitus*.

The above details are not inserted here with any view to vaunt my own keenness of sight and comparison,—still less with any wish or intention to depreciate the botanical accuracy of my justly valued friend Babington, or to expose the error into which he has inadvertently fallen;—but solely as hints to students of the caution required in investigating this variable and difficult genus, by showing the necessity of careful and long-continued study, not only of dried specimens, but of the characters and habits of the living plants in their native localities and in different situations, soils, and circumstances;—as well as to point out the links, trivial in themselves, but by gathering up and connecting which, the truth may be ultimately arrived at.

Specimens of *R. Leightonianus* from the Wrekin are comprised in the Fascic. Shropsh. Rubi.

[To be continued].

W. A. LEIGHTON.

Luciefelde, Shrewsbury,
June 1st, 1848.

Note on the 'Flora of Leicestershire,' with Addenda thereto.

By MISS M. KIRBY.

YOUR correspondent is evidently unacquainted with the character and design of the 'Flora of Leicestershire.' The work, which is not a published one, is simply preparatory, and has been printed for local convenience. No botanist can be expected to furnish the author with a complete list of all the plants, common or rare, that have come under his observation; but with an arranged catalogue, and a blank page before him, it is easy to insert the results of his investigations. Copies of the Flora may be obtained of Crossley, Leicester, and have been forwarded to botanists in the county, with the name and address of the compiler, together with a personal appeal for assistance! should such be afforded, much valuable information will be gained; the catalogue thus augmented will eventually be published, and "authorities given with the localities enumerated for the rarer species." The use of the asterisk is explained by a note at the foot of page 4, and refers throughout to Crabbe's 'Natural History of the Vale of Belvoir.' The note of interrogation speaks for itself, expressing doubt and a wish to obtain further evidence. *Sedum album*, *Rosa rubiginosa*, and *Rumex pratensis*, three plants thus introduced, have already had localities assigned them. The mistake of *Ænanthe pimpinelloides* for *Æ. Lachenalii* was occasioned by an accidental reference to a previous edition of the 'London Catalogue,' in which *Æ. Lachenalii* is not to be found. The error of *Glaucium luteum* was erased as soon as discovered. It is feared that *Cardamine impatiens* must also disappear from the list; Oldbury is unfortunately in Warwickshire, the locality near Ashby de la Zouch will probably prove to be in Derbyshire, and the plant has become extinct upon Bardon Hill.

It may be interesting to give a few addenda.

Hesperis matronalis.

Geranium robertianum, var. *album*.

Potentilla Comarum.

Rubus sylvaticus.

— *Babingtonii*, var. *Bloxamii*.

— *radula*, var. *Hystrix*.

— *glandulosus*, var. *rotundifolius*.

Galium palustre, var. *Witheringii*.

Iris pumila.—Apparently indigenous in Charley Meadows.

Potamogeton zosteraceus.

Carex fulva.

Phalaris Canariensis.

Aira cristata.

Pilularia globulifera.

M. KIRBY.

Friar Lane, Leicester,
June 9th, 1848.

Note on Raising Cowslips (Primula veris) from Seed.

By WILLIAM GODLEY, Esq.

HAVING raised some of the common cowslip from seed, I read Mr. Watson's report of experiments (Phytol. iii. 146) with a good deal of interest. The following is a report of my own experiment.

In the summer of 1846 I collected some seed of the common cowslip in a pasture near this town, and so situated that I considered the probability of hybridization (if such does really affect the seed) to be exceedingly small. In the spring of 1847 the seed was sown, and thirty-six seedlings were produced, which were planted out in a border having an east aspect. This year (1848) thirty-five of the seedlings have flowered, and I am unable to discover in the leaves, calyx, or corolla, any the least departure from the ordinary form of *Primula veris*.

WILLIAM GODLEY.

Wallingford, June 8, 1848.

Note on Raising Jacquin's Primula (Primula Jacquinii), commonly called the Bardfield Oxlip, from Seed. By EDWARD NEWMAN.

HAVING been favoured by Mr. Doubleday with specimens of this interesting plant, I planted them without any unusual precaution in a border with roots of the common primrose, cowslip, double pink primrose, and polyanthus. The Bardfield plant flowered and seeded freely, and numerous seedlings were produced. This spring eight of the seedlings have flowered, and to use the words of Mr. Godley, "I am unable to discover in the leaves, calyx, or corolla, the least departure from the ordinary form of" *Primula Jacquinii*.

In this instance it will be observed there was a great facility offered for hybridization by insects, &c., owing to the propinquity of other species or varieties simultaneously blooming in the immediate vicinity: so little care was exercised that had the result been remarkable for

an opposite tendency, *i. e.* to the production of dissimilar forms, I could not even have asserted from which parent the seeds actually fell : and I could only decide positively on the parentage when I saw the flower.

A word on hybrids. It is asserted by zoologists that a true hybrid or mule, for instance, that between the horse and ass, is sterile as a natural consequence of its hybridity. Without expressing any opinion as to the validity of this conclusion, I may unhesitatingly assert that its converse obtains in plants. No two species of a genus are normally more distinct than *Fuchsia coccinea* and *F. fulgens* ; yet a great proportion of our most beautiful varieties are obtained from hybrids between these two, the hybrids themselves being equally productive with the parents. It may possibly be suggested that this well-known fact induces the conclusion, that the two parents are but varieties of one species : but if so, how are we to define a species ?—the form, habit, and colour of foliage and inflorescence, being supposed to indicate no higher division than that of variety. I must acknowledge that I incline to discard the sterility test of hybrids in plants, and to conclude that nature has herself set up a law of her own, which, when left perfectly to herself, she invariably enforces. I am not aware that the hybrid oxlip (*Primula elatior*) is of usual occurrence in perfectly uncultivated districts. In woods the primrose, and in old meadows the cowslip and Jacquin's *Primula*, generally retain their characters with great precision ; and the occurrence of the hybrid in its usual localities of orchards, garden-hedges, &c., seems to me to point to two conclusions : *first*, that the presence of man in this, as in manifold instances besides, interferes with the ordinary course of nature ; and *secondly*, that the sterility test assumed and partially proved in *animals* is not available to prove the distinctness of species in *plants*.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
June 9th, 1848.

Note on the British Rubi. By the Rev. ANDREW BLOXAM, M.A.

I AM glad to see a resumption in the June No. of the 'Phytologist' of Mr. Leighton's valuable notes on the British Rubi, and regret that the whole have not been published earlier, that they might be available to the investigators of this difficult genus during the present season. Having sent a very large supply of specimens of different species of

Rubi to the London Botanical Society, collected last year, and which have now been distributed among the various members of the Society, I would take the liberty of suggesting to those who are becoming acquainted with the various forms, to notice especially the times of flowering of the different species met with in their own neighbourhood. The concurrent testimony of numerous observers upon this point will tend much to the elucidation of doubts as regards species or varieties. In my own neighbourhood, where the Rubi are very abundant (the following species growing within 100 yards of my house, viz., *R. Idæus*, *nitidus*, *corylifolius*, *carpinifolius*, *amplificatus* (*Lees*), *sylvaticus*, *discolor*, *fruticosus* (*E. B.*), *discolor*, β . *thyrsoideus* (*Bab. Syn.*), *radula*, *Kœhleri*, *nemorosus* (*Hayne*), I find that *R. plicatus* and *corylifolius* (*sublustris*, *Lees*), are always the first in flower, generally the last week in May, and this from the observation of some years. *R. nemorosus* (*Hayne*), generally appears next; other species follow in succession, some earlier, some later. *R. discolor* (*R. fruticosus*, *E. B.*) generally flowers and fruits last of all, and from this circumstance and the different mode of growth which it exhibits from *R. discolor*, β . *thyrsoideus* (*Bab. Syn.*), I am strongly inclined to believe that the two are distinct as species. The latter is always a much earlier bramble, of a more straggling and less bushy-like appearance; both are abundant in this neighbourhood, and therefore afford good opportunities for observation. The shape, size, and torus of the primordial fruit should also be observed, as well as the scales at the base of the flowering shoot, as some of these may probably afford permanent marks of distinction. The fruit of some species differs very materially in size and flavour from that of others; the year 1846 was very productive in fruit, and that of *radula*, when grown in hedges well exposed to the sun, and a *Rubus* which I believe to be a form of *sylvaticus*, were particularly fine and well flavoured. Several jars of the fruit of these two species were preserved by me, and when mixed up with other preserves they gave a most delicious flavour to the whole. It is probably well known to many of your readers, that the fruit of the Rubi, whether preserved or otherwise, is peculiarly useful in complaints of gravel, &c.

In procuring specimens, a stout pair of gloves and scissors are the best implements for the purpose, the latter being far superior to the knife; and as few vasculums are sufficiently large to hold many specimens, I have always found that a portfolio or couple of Bristol boards, with a few sheets of any kind of paper to divide the separate species, are most convenient.

Characteristic specimens should be collected, and a portion of the barren stem, with its 5-nate or 3-nate leaf taken anywhere near the middle, should always be gathered with the flowering one; care should also be taken when several *Rubi* are growing intermixed with each other not to confound the barren stems of one species with the flowering ones of another; this was occasionally done by myself when I first commenced, under the tuition of my friend Mr. Lees, the study of this difficult genus, and more than once I sorely puzzled my friend Mr. Babington with the fruits of my carelessness and inattention.

A. BLOXAM.

Twycross, Atherstone, June, 1848.

Occurrence of Botrychium lunaria near Twycross.

By the Rev. ANDREW BLOXAM, M. A.

It may not be uninteresting to observe that a botanist may almost every year be finding something new in his neighbourhood; for instance, I have lived in my present abode for ten years, and not until the present one have I discovered *Botrychium lunaria* (and there has been only one recorded locality for it as yet in the whole of Leicestershire). I have now three different localities for it in this parish, one where it grows not unsparingly, and that in a field within a hundred yards of my house. Strange that I should have overlooked it so long before!

A. BLOXAM.

Twycross, Atherstone, June, 1848.

Notice of 'Contributions towards A Catalogue of Plants indigenous to the Neighbourhood of Tenby. London: Longman & Co. 1848.'

LOCAL catalogues for any part of Britain are valuable, provided their correctness may be relied upon; and additions to the few and incomplete lists for Wales are more particularly needed. Accordingly, we hail this publication with pleasure; although probably it is far from being a full list of the flowering species to be met with about Tenby. Though extended to fifty pages, the work is simply a list of species, arranged in natural orders, with indications of frequency, and mention of very few localities for the less common. Judging from the

internal evidence, the author of the work has enjoyed few opportunities for examining the botany of the tract which he has undertaken to illustrate, or else he is too partially familiar with plants to have been able to identify all the species. Some very common species are wholly omitted, few or none of which can readily be supposed absentees from the vicinity of Tenby; for example, *Ranunculus acris*, *Papaver dubium*, *Cardamine hirsuta*, *Stellaria graminea*, *Stellaria holostea*, *Cerastium triviale*, *Trifolium procumbens*, &c., &c. And many others are inserted on the authority of Mr. T. B. Flower, as "noticed during a short visit made to Tenby in 1847," which seems to justify an inference that these also had escaped the notice of the author of the work, common as they are known to be in other parts of England and Wales, and we can scarcely suppose them uncommon about Tenby; examples occur in *Sagina procumbens*, *Arenaria serpyllifolia*, *Potentilla fragariastrum*, *Angelica sylvestris*, *Heracleum Sphondylium*, *Daucus Carota*, *Scabiosa succisa*, *Lapsana communis*, *Stachys sylvatica*, *Euphorbia Peplus*, *Holcus lanatus*, &c., &c.

From this internal evidence, it may readily be presumed that the title of the work is literally true; and that it must be received only as a contribution *towards* a catalogue of Tenby plants. We suppose it to be from the hand of Dr. Randle Wilbraham Falconer, the Preface being subscribed by the initials "R. W. F.," and dated at Tenby. But the name of the author is omitted on the title-page, and the publication consequently is anonymous, however transparently so. We could wish this were otherwise, and cannot at all understand the motive which prompts an author to print scientific facts anonymously, and thus greatly to lessen their value, through the uncertainty or even distrust which will of course attach to unacknowledged statements of fact. In looking through the list of species, we have not detected any improbabilities, and therefore conclude it to be credit-worthy so far as it goes.

C.

Notice of the 'Flora Hertfordiensis: being A Catalogue of Plants known, or reported, to grow wild, in the county of Hertford, with the Stations of the Rarer Species. By the Rev. R. H. WEBB, Rector of Essendon; assisted by the Rev. H. COLEMAN, and by various Correspondents. Pamplin, London. 1848. Part I.'

THIS Flora has been long looked for; and it comes at length in an

elaborated form which places it much in advance of all its predecessors. The First Part includes only the order Ranunculaceæ of the Flora, treated in full; but a map of the county, and forty pages of valuable introductory matter, are prefixed; and these we can strongly recommend to the attention and imitation of those botanists who may be sufficiently zealous in the cause of science, to give the requisite time and thought to the working out of a Flora on a complete and scientifically serviceable plan.

The map of the county is distinguished by colours into three principal *Divisions*, those of the rivers Lea, Colne, and Ouse; the latter being comparatively a small portion of the county, bordering on the shires of Cambridge and Bedford. These three chief divisions are subdivided into twelve minor *Districts*. The county in general, the divisions, and the subordinate districts are carefully and well described, in reference to their physical geography, by the Rev. W. H. Coleman; and the number of species ascertained to occur in each division and district, is set forth in the description. There is likewise a list of all the species which have not been ascertained to occur in every one of the twelve districts, arranged in a tabular form, with a line of Nos. and blanks opposite the name of each species; thus showing at a glance within which of the twelve districts each respective species has hitherto been found, as also those from which it is still a desideratum. This tabular list is a particularly valuable addition to the work. Signs are employed to distinguish the “scarcely naturalized” (*) and the “probably introduced species” (†) from the rest. The Introduction is wound up by two pages of smartly penned, but quite good-humoured, semi-satirical lines, appropriately in place; having been addressed to the authors, by way of remonstrance on their delay in bringing out the promised publication. The following paragraph, taken from the first page of the work, will afford some additional explanations; and fully can we sympathize with Mr. Webb’s regrets at losing any portion of the valuable aid which his coadjutor, Mr. Coleman, is so very competent to give.

“So many circumstances,” writes the Rev. R. H. Webb, “unforeseen and inevitable, have occurred to delay the publication of the following little work on the Wild Plants of Hertfordshire, that, probably, many persons who took a lively interest in its first announcement, have, ere this, despaired of ever seeing it completed;—nor are the circumstances under which it at length appears very auspicious; inasmuch as I am deprived of the *finishing hand* of my friend and former coad-

jutor, the Rev. W. H. COLEMAN, without whose co-operation the work would never have been undertaken. Still, as little more than the arrangement is now necessary, and I have a considerable body of materials on hand, I feel that I am perhaps called upon to make an effort to publish them,—more especially as I am indebted to the labours of many kind and zealous Correspondents for a great proportion of the information I possess, and who probably, together with the Public, might think me in a certain degree pledged to bring the work to a close. Acting under this impression, I have resolved to undertake the publication, and I propose the work should consist of Four Parts, which will appear consecutively every two or three months, according as I can prepare them; so that the whole may be completed within the twelvemonth.”

The cordial thanks of British botanists are certainly due to the author of the preceding paragraph, for perseveringly carrying out the original intention, and not depriving them of this important addition to our local floras for English counties. The turn of thought and feeling conveyed in the following passage, will find a kindly echo in the minds of others :—

“It does not occur to me that I need say more in the present stage of the work. It is with very mixed feelings that I have undertaken it. More, alas! than one kindred spirit, in whose company it was commenced, has, ‘like the flower of the field,’ passed away. Others are removed to a distance, and naturally cease to take the same interest in the pursuit which once occupied us so gladly. Still, it is not without satisfaction that by-gone hours have been brought again before me,—that the plant and the place, and the pleasure of finding both, have come fresh into my memory; and if I should succeed in imparting any like pleasure to a rising generation of botanists (for these, like the flowers they seek, are ever springing anew), I shall have nothing to regret.”

In treating the species, the author judiciously omits generic and specific characters. But he gives the derivation of names; accents the principal vowel in the generic name; and refers (with more tedious care than necessary or useful) to the pages of Smith’s ‘English Flora,’ Lindley’s ‘Synopsis,’ Babington’s ‘Manual,’ as also to the figures of ‘English Botany,’ where the species are described or illustrated. The distribution of each is well and fully shown; first, under the three principal divisions, and subordinately under such of the twelve districts in which it has been ascertained to occur; speci-

fied localities being indicated for the less widely or less frequently distributed species.

C.

BOTANICAL SOCIETY OF LONDON.

Friday, 2nd June, 1848. — John Reynolds, Esq., Treasurer, in the chair.

John Price, Esq., of Denbigh, J. H. Blount, Esq., of Birmingham, and Francis Harley, Esq., of Costock, Loughborough, were elected members.

The following donations were announced:—

A collection of German mosses, presented by Dr. C. F. P. de Martius, of Munich; a collection of specimens of American Oaks, with their fruit, presented by Mr. Edward Doubleday; British plants, presented by Dr. R. W. Falconer, Mr. T. Westcombe and Mr. J. H. Thompson. Mr. William Andrews, M.R.I.A. (the Society's Local Secretary for Dublin), exhibited a beautiful collection of living specimens of Irish Saxifrages, collected in Kerry, and comprising specimens in illustration of the varieties of *Saxifraga umbrosa*, *S. hirsuta*, and *S. Geum*. Mr. A. also presented leaves from a cultivated specimen of an apparently new species of Saxifrage, the original plant having been discovered by him in Kerry, in September, 1845. In a letter to Mr. G. E. Dennes, the Secretary, Mr. A. stated "that the form and structure of the leaf had not before been met with or described among the Saxifrages, and probably the flower might present some feature of interest." Mr. S. P. Woodward presented specimens of a species of *Carduus*, so nearly intermediate between *Carduus Forsteri* and *C. pratensis*, as to render its proper specific name doubtful until a larger series of specimens shall have been examined. It will probably prove an extreme form of the variety "*pseudo-Forsteri*" (London Catalogue), frequently mistaken for the true *C. Forsteri*. The specimens were collected by Mr. W., on the farm of Mr. Thomas Arkill, at Penhill, near Swindon, Wilts, in May last.—*G. E. D.*

Reply to Mr. Watson's Observations, Phytol. iii. 84.

By JOSEPH SIDEBOTHAM, Esq.

ALTHOUGH Mr. Watson very considerably recognizes the right of other botanists to question any of his assertions, it appears that he does not recognize their right to an answer, though I certainly cannot see the use of the former if the latter be denied. Mr. Watson (Phytol. iii. 84) asserts very boldly and dogmatically, that "the other three species mentioned in Mr. Sidebotham's communication are introduced and imperfectly naturalized." It is very easy to make such assertions, but not so easy to prove them; and when called upon to do so, Mr. Watson affects to despise *my* claim, instead of honestly vindicating *his* marvellous statements, and expends his wrath on what every one must see was a mere *lapsus calami*, thus leaving the subject of my letter wholly untouched; in fact, Mr. Watson descends at the outset to low personalities, a circumstance that speaks for itself.

In these democratic times every one thinks himself entitled to a hearing; and the day has gone by when false positions can be taken, and erroneous statements be put forth, and allowed to go unchallenged, occasionally even by persons who do not lay claim to the dignity of intellect that would raise them to a level with those whom they would question. I have no doubt that Mr. Watson would be very glad if I and others would attend to his suggestion, and refrain from criticizing his productions for the future: it would save him much trouble and perturbation, and keep up his fond delusion that they are immaculate. When my remarks on the 'London Catalogue,' seconded by those of Mr. Grindon, appeared in the first volume of the 'Phytologist,' no attempt was made to answer the queries, or explain the inconsistencies pointed out; and though many of our suggestions have been attended to in the second edition, it is still very unworthy of its name; and until Mr. Watson explain what he means by a *native*, *naturalized*, and *imperfectly naturalized* species, every botanist will be at liberty to consider that he cannot do so consistently; and all know what to think of his dogmatical assertion that *Oxalis stricta* is imperfectly naturalized, in spite of the evidence which has been brought to prove the contrary.

Till these explanations are made every one must accord with the common-sense view taken by the Editor of the 'Athenæum,'—"*This list is capricious and unsatisfactory, and of no authority with men of science.*"—Athenæum, p. 413, April, 22, 1848.

JOSEPH SIDEBOTHAM.

Cheshire, June 14, 1848.

[As I think this discussion cannot be pursued further with advantage to science or pleasure to the readers of the 'Phytologist,' I hope that Mr. Watson will not reply: and having expressed that hope, I must take the liberty in a friendly spirit to point out to Mr. Sidebotham that he does not escape from the charge of misrepresentation by terming that misrepresentation a *lapsus calami*. If Mr. Sidebotham by a slip of the pen wrote *one* thing while he meant *another* thing, then *that other thing*, which he intended to write, but did not, should not only be forthcoming, but should establish the justice of any remarks grounded on the now-called *lapsus calami*. Again, Mr. Sidebotham *assumes* that the strictures he quotes from the Athenæum are penned by the editor of that journal: now those who are behind the scenes *assume*, and on far better grounds, that the editor of the Athenæum neither knows nor pretends to know anything of Botany; and assume further, that the passage in question was penned by some tyro, whose blunders or presumption may have been exposed by the caustic remarks of the author of the 'London Catalogue.' It is a great drawback to the value of the Athenæum that its remarks on Natural History are not editorial: there are so few writers on any one branch of the science, and these few are so hostile to each other, that there is little chance of their reviewing one another fairly. I now never send a book to the Athenæum, deeming it likely to get into the hands of some scribbler, whose misdeeds I have chastised, and who may still be smarting under the lash.—*Edward Newman*].

*List of Habitats of Plants recorded in MS. in a Copy of Blackstone's
'Specimen Botanicum.'* (Communicated by W. PAMPLIN).

(Continued from page 170).

Valeriana sylvestris major montana. About three miles before you come to Westerham, in Kent, in the road from Croydon.

Valerianella vulgaris major species serotina. In the corn about Otters Pool, and near Smoakhall Wood, by Bath.

Verbascum pulverulentum flore luteo parvo. About the ditch on the outside the city walls, at Norwich; also by the river Yare, between Bishopsgate Bridge and the ferry-house, both places plentifully.

Veronica flosculis singularibus foliis laciniatis erecta, R. Syn. 280. 6. In a field on the right hand of the road from Sudbury towards Braintree. Mr. Andrews.

Vinca pervinca minor. By the walkside behind Bellsizes House, Hampstead, towards Tottenham Court Road.

Urtica pilulifera. About the walls of Yarmouth, in Norfolk.

Ulmus minor folio angusto scabro. In the road between Ipswich and Colchester.

WILLIAM PAMPLIN.

45, Frith Street, Soho,

24th June, 1848.

On the Acceleration of the Frondescence of Trees and Flowering of British Wild Plants in the Spring of 1848. By EDWIN LEES, Esq., F.L.S., &c.

IT must be admitted that in all our Floras there is a looseness in the indications of the times of flowering of the plants described; so that in many instances, as in Francis Moore's time-honoured predictions of weather, where rain was announced "the day before or the day after" such a date, so in the works referred to, the month before or the month after would really suit just as well as the time stated. In fact, precision has been somewhat neglected here, and I believe that Mr. T. Forster is almost the only author* who has come directly to the point, by stating in the *Flora Spectabilis* and *Rustic Calendar* of his 'Encyclopædia of Natural Phenomena,' the precise times of plants beginning to flower, full flower, and end of flowering. Some years since, indeed, the amiable and observant naturalist the Rev. W. T. Bree, gave specimens of a 'Calendar of Coincidence,' in Loudon's 'Magazine of Natural History,' with a view to connect the flowering of plants with the appearance of birds, insects, &c. I have long made memoranda of the same kind, but I believe nothing complete has yet been published.

The alternations of temperature and changes of weather in the variable climate of England, no doubt render positive exactness impossible, and therefore I presume the average time of flowering is struck with respect to our native plants, and that is what is intended in all the Floras, whether general or local. But as this is often but a kind of guess-work, I am inclined to think it would be better to denote the

* If this has been done to any extent by other botanists, I beg they will impute my omission of their names to ignorance of their labours. Mr. Forster has further worked out the subject in his 'Perennial Calendar,' and I have aimed at its development in the 'Botanical Looker-Out.'

time when plants commence flowering in the most favourable season, as well as the end of their flowering. In local Floras especially this should be attended to. That an acceleration in the time of flowering of many of our wild plants has taken place this year, I think I shall be able to prove by my own observations, compared with those of Mr. Forster on the one hand, and the months given in the Floras of Hooker, Babington, and Steele, on the other, which I take as being of most recent date, and one or other in every botanist's possession. I think the subject may be considered interesting as contrasting former seasons with the present; but I must premise that my observations will probably not fully accord further north than the midland counties.

The winter was moist and mild, so that it might have been expected that our wild flowers would appear earlier than the general average, and this was the case with one exception. I do not mean, however, to notice stray primroses and oxlips smiling under a warm hedge, but shall commence with the blackthorn (*Prunus spinosa*), which, unless the season be backward, I have generally seen in flower on April 1st; Mr. Forster, however, says that it "usually blooms about the middle of April." I find this note in my journal, under April 1st, this year: "Sudden summer has at once come upon us, and to-day the temperature is that of July, with quite a feeling of oppression. Damson and plum-trees in gardens, and *Prunus spinosa* in the hedges, in full flower. The hawthorn is already mostly in leaf, brambles are green with young shoots, the woodbine quite out in leaf, and the young shoots of roses apparent. White butterflies appeared."

April 3.—Wild cherry (*Prunus avium*) in flower. Leaves of horse-chesnut and sycamore expanded. Celandines (*Ficaria verna*) in full expansion.

On April 8, however, the "blackthorn weather," as country people call it, came on with cold N. E. winds, arresting vegetation in some degree. Yet still, on April 9, hawthorn, elder, and larch, were in full leaf pretty generally; and the blackthorn's snowy clusters beautifying the hedges in all directions. *Anemone nemorosa* in flower.

April 13.—The young leaves of lime and birch expanded. Jack-by-the-hedge (*Alliaria officinalis*) in flower. Forster gives April 28 as its first flowering day. May according to Hooker, Babington, and Steele.

April 17.—The pear orchards beautifully in flower, presenting a glorious spectacle. Martins (*Hirundo urbica*) first seen this evening. A corps of swallows had been seen on the 10th.

April 23.—*Cardamine pratensis* in full flower. Mr. Babington correctly says April in his Flora, but Hooker and Steele May. Forster, perhaps a little fancifully, says, under April 6, "Flowers here and there in moist meadows, hence its name *Lady's Smock*, this being old Lady-mas day in the old style." The cuckoo heard first time this season.

The cowslips are now in full flowering, though Forster says "not numerous in the meadows till about the 26th," (of an average season). Bluebells (*Scilla nutans*) now tinting every copse with the azure of heaven. Forster truly says, "Flowers about the middle of April;" yet Hooker, Babington, and Steele, all indicate May. April 23 (St. George's day) is, according to Forster, the maximum flowering of them.

Caltha palustris in full golden perfection. Under April 22, Forster says it "flowers plentifully." Hooker and Babington give it the benefit of March, when perhaps a few stragglers may appear. It is seldom that the authors of our Floras are early enough in their indications. Orange-tipped butterflies numerous in the meadows.

Oaks putting forth young leaves this day, and frondescence everywhere apparent, except on ash-trees and black poplars. The season so far a very forward one, as Forster gives May 10 as that of the "first frondescence" of the oak, and I have known seasons when expanded foliage was not procurable on May 29.

April 27.—Lombardy poplars (*P. dilatata*) in leaf.

April 30.—Apple-trees here and there in flower in orchards.

The mean temperature of April was 47° Fahr., but as it had a considerable proportion of gloominess, rain, and cold winds, there was nothing very particular in its aspect, except as being more leafy than usual. But the month of May set in with such extraordinary summer weather, and throughout maintained such a clearness of sky and absence of rain, as to make it remarkable to the commonest observer. Hence, I was anxious to notice particularly any acceleration in the flowering of our wild plants that might occur, and kept a look-out accordingly. The maximum temp. of April 24 was 49°, but on the 29th this had risen to 56°, on the 30th to 61½°, on May 4 to 70°, and on May 12 to 80°, the average temp. for the week ending May 17 being 62½°, near ten degrees above the average value for the season. Yet, strange to say, although fully in leaf, no hawthorn was in flower to my observation on May 1, and even on May 5 I remark: "Apple-trees generally in flower, but no hawthorn blossoms yet apparent." It is remarkable, in fact, that none appeared till May 7, and the flowering

was all over the country so poor and inconsiderable as to be generally remarked.

May 4.—Lilac (*Syringa vulgaris*) in flower.

May 7.—Ash (*Fraxinus excelsior*) in flower, with young foliage just apparent. All other forest trees in leaf, except the black poplar.

May 8.—Horse-chesnut (*Æsculus Hippocastanum*) in flower. Laburnum just expanding its blossoms.

May 9.—The meadows are now golden-streaked with the flowers of *Ranunculus bulbosus* and *acris*. Forster says the maximum of flowering for *bulbosus* is the first half of May; for *acris*, end of May and June. *Acris* was well in flower this year in May, though the Floras give June and July for it.

May 10.—The heat quite enervating, but vegetation progresses with extraordinary activity. Even the ash partially in leaf. Black poplar showing its first copper-coloured foliage. Apple-trees at their acme of beauty. Cockchaffers have appeared, but they seem very few in number this year.

Lonicera caprifolium in flower.

May 12.—*Rosa spinosissima* in flower; also *Geranium lucidum* and *Ranunculus parviflorus*. (June, Babington).

May 14.—*Rubus cæsius* in flower. Always the first of the train of Rubi, but this date is earlier than I have before recorded. Forster and all the Floras say June. Mr. Leighton gives July for Shropshire. It was universally in flower this season in May.*

Tragopogon pratensis in flower. June according to Hooker, Babington, and Steele; Mr. Forster, however, justly says that it flowers about the 16th of May, becomes abundant 1st of June, and declines in July.

Bryonia dioica in flower.

May 15.—Very sultry. Max. temp. of this day $81\frac{1}{2}^{\circ}$. Holly (*Ilex aquifolium*) in flower.

Red campion (*Lychnis diurna*) in flower; also *Potentilla* in a few places by roadsides. June according to Forster and all the Floras, which is usually the case.

Enanthe peucedanifolia in flower. This plant I have noticed as

* My esteemed and observant friend the Rev. Andrew Bloxam, who is gloriously hedged in with Rubi at his pleasant domicile in Leicestershire, says (*Phytol.* iii. 182) that in his vicinity *R. plicatus* and *subulstris* are the first to flower, but as I know from observations made in his company, *R. cæsius* is curiously enough very rare in that neighbourhood, it escapes his notice.

flowering about the middle of May for some years past; yet Hooker and Babington say June, and Steele even July. It flowers full three weeks before *Œ. pimpinelloides*, and longer still before *Œ. Lachenalii*, so that it may be identified by its early flowering alone. It becomes withered and almost lost by the middle of June.

Ash-trees and black poplars now in full frondescence, and the leaf-age of trees completed.

May 16.—Ragged Robin (*Lychnis flos-cuculi*) in flower. *May 22* is Forster's average date; May and June, Babington and Steele; June, Hooker.

Elder (*Sambucus nigra*) in flower. This tree has certainly flowered this season much earlier than usual; all the Floras indicate June, and Mr. Forster gives June 13 as the "sheep-shearing day," the sign of which was, according to Dyer, the flowering elder.

"If verdant Elder spreads
Her silver flowers, if humble daisies yield
To yellow Crowfoot and luxuriant grass,
Gay shearing-time approaches."

I have before observed in Bot. Looker-Out that "the elder is very characteristic of our transient summer, which can never be said to be established till the perfume of its sulphur umbels loads the evening air, and this frequently happens the last week in May, but in 1839 the flowers were not expanded till June 17;" a month's difference between that and the present season!

Great summer daisy (*Chrysanthemum leucanthemum*) in flower. June, say all the Floras, and Forster says that it is "not abundant till about St. Barnaby, whence the name (June 11)." But the fact is that it always begins to flower in May, and the saint seems to have no just claim to its appropriation.

Mouse-ear hawkweed (*Hieracium pilosella*) in full flower.

Papaver Argemone in flower numerously. Forster fixes it from "May 24 to June 10." The Floras say generally June.

Glaux maritima in flower by the side of the saline Droitwich canal. June, Babington; July, Hooker and Steele.

May 17.—*Rosa canina* in flower. Very early. "Wild roses," says Forster, "belong to the Solstitial Flora, and flower in June and July."

Viburnum Opulus in flower. June, say the Floras.

Hypochaeris radicata in flower. July according to Hooker, Babington, and Steele.

Sonchus oleraceus in flower. June, all the Floras.

Cowslips rapidly going off. Meadows refulgent with golden Ranunculi, but becoming now somewhat chastened with the bronze spikes of *Rumex acetosa*. The tall mayweed (*Anthriscus sylvestris*) now fringes the evening robe of contemplation with a border of silver, seen even at midnight.

May 20.—*Iris pseud-acorus* in flower in some quantity. I have found the flowering of the yellow *Iris* a capital test for an early or late season. In general it may be met with in flower on June 1, and this is Forster's date in his *Encyclopædia*, and the season is behind if it be not then apparent in the marshes. On the other hand, I should reckon the season so many days earlier than an average one as the *Iris* flowered before June 1. Of course the Floras indicate no month earlier than June.

In this paper I have only taken the plants that actually fell under my own observation, and have omitted those that did not seem at least in some degree illustrative. Without "full flower" is mentioned, it must be understood that a few plants only were observed with unfolded petals.

Senecio aquaticus in flower. Early in June according to Forster; Hooker, Babington, and Steele, say July and August.

Yellow rattle (*Rhinanthus Crista-galli*) rather numerous in flower in a meadow by the Severn. June according to the Floras. Forster says that this plant belongs to the Solstitial Flora. "Haytime," he observes, "begins in the neighbourhood of London about the 20th of June, when the *Rhinanthus Crista-galli* flowers; it is later by ten days in most other parts of England." But it is usually said in Worcestershire that the grass is ready to cut when the seeds of the yellow rattle are so ripe as to be rattled in their capsules.

Orchis latifolia most luxuriantly in flower.

May 23.—*Rubus dumetorum*, *var. ferox*, in flower. July and August are set down by Mr. Babington for this form, yet it was plentifully in flower in May this season. The yellow *Iris* generally in full flower.

May 24.—Hawthorn flowers rapidly going off, succeeded by the elder, now displaying its silver umbels in all directions with luxuriant profuseness. The trees have all the leafiness of June in their aspect.

May 25.—*Rosa Doniana* beautifully in flower in hedges near Cruckbarrow Hill. Highest temp. of day $78\frac{1}{2}^{\circ}$.

May 26.—*Rubus suberectus* in flower. June, Hooker and Steele; July, Babington.

Great snapdragon (*Antirrhinum majus*) in flower on several old

walls. All the Floras say July and August. It was abundantly in flower the first week in June.

May 27.—*Malva rotundifolia* and *Convolvulus arvensis* in flower. The Floras say June for the latter, and Forster gives June 26 as its commencement of flowering. The meadows have already cast off their golden robe of buttercups, the grasses are grown high, and a cinereous hue prevails from their being generally in flower. The grating of the corn-crake resounds every evening.

May 28.—Privet (*Ligustrum vulgare*) just coming into flower. Clare, the Northamptonshire poet, in his observant sketches, has well combined the privet with other summer flowers:—

“How sweet the walks by hedge-row bushes seem,
On this side wavy grass, on that the stream;
While dog-rose, woodbine, and the privet-spike
On the young gales their rural sweetness teem,
With yellow flag-flowers rustling in the dyke.”

Rosa villosa in flower. *Doniana* and *canina* plentifully. A few flowers of *Cornus sanguinea* expanded.

May 30.—Foxglove (*Digitalis purpurea*) in flower. June 6 is the day when, according to Forster, it “begins to flower.” He says they continue all through the æstival season, though “they first blow early in the solstitial.”

Cornus sanguinea in full flower. Woodvetch (*Vicia sylvatica*) in flower on the banks of the brook at Sapey, famous for the legend of the tracks of Saint Catharine’s mare and colt. The wild scene of broken sandstone slabs over which the brook murmurs in many a water-break, is indeed well worthy of a legend; and to gratify the exploratory naturalist, I can say the “tracks” are still there! *Geum rivale* and *intermedium* in flower by the same brook, just above Sapey Pritchard Bridge. *Polygonum Bistorta* and the Columbine, both in full flower, also adorned this romantic vicinity, as well as the white odorous *Habenaria chlorantha*. The *Vicia sylvatica* covered the bushes about the banks of the brook most profusely. The Floras indicate July for its flowering.

May 31.—Common mallow (*Malva sylvestris*) in flower. Commences flowering according to Foster on June 16. This common road-side plant forms a very good test for an early season. The temperature that had urged on the progress of vegetation was now, however, on the decline, though its effects will be traced further. Maximum temp. of this day $69\frac{1}{2}^{\circ}$, and the mean temperature of the

week $58\frac{3}{4}^{\circ}$. I noticed the Libellulidæ to be exceedingly numerous this month, especially the bronze-winged fluttering Agrion Virgo, most commonly the attendant of the succeeding month.

June 1.—Privet generally in flower. The elegant crimson grass-vetch (*Lathyrus Nissolia*) out most profusely, as well as the rarer *Lathyrus Aphaca*. Hooker gives May for the former, which is correct. *Lathyrus pratensis* also sparingly in blossom, though the Floras all say July for it.

June 2.—*Ænanthe pimpinelloides* in flower in its old habitat on the dry red marl at Powick. The Floras are here again “behind time,” for they all say July, though even in ordinary seasons it begins to flower about the middle of June. It is remarkable, that although this plant is abundant in many hilly meadows between the Malvern hills and the Severn, I have never found it north of Worcester.

June 4.—Woodbine (*Lonicera Periclymenum*) in full flower. This no doubt came out earlier, but I did not happen to meet with it. Forster says it may be called a solstitial plant, but “flowers all summer, from May to August.”

Corn poppy (*Papaver Rhœas*) in flower. A true solstitial sign. “Flowers about St. Barnabas (June 11),” says Forster, “and by mid-summer quite reddens the corn-fields, in some soils.” The poppy has been always singularly connected with corn, and perhaps Virgil’s expression, “*rubicunda Ceres*,” in the 1st Georgic, may allude to this. At all events, Ceres is often very much reddened with the interloping poppy ever clinging to her robe.

Lapsana communis in flower. July and August according to Hooker and Babington. Steele rightly says June and July. *Rubus cordifolius* in flower, and *R. suberectus* most beautifully so. Many oak-trees almost bare from the attacks of an overwhelming army of caterpillars; I believe that of the little green Tortrix viridana.

June 5.—*Potentilla reptans* and *Genista tinctoria* in flower. The latter belongs to July and August according to the Floras.

June 6.—*Sedum acre* in flower. A sure solstitial sign when roofs glow with the expanded golden petals of this plant. Hay-making has commenced.

June 9.—Barnaby bright of the old style. “It is now the beginning of the solstitial season,” says Forster, “and consequently marked by many distinguishing phenomena. The various poppies, the roses, the pinks, and other solstitial plants, begin to flower plentifully.”

Rosa arvensis in flower. This trailing rose, distinguished by its peculiar and less grateful odour, blossoms later than any of our other

native roses, and often continues far into July. I have not observed it so early before.

Helianthemum vulgare in full flower. Forster says that it begins to flower on June 26. The Floras unite in being too late, indicating July and August. Saintfoin (*Onobrychis sativa*) now makes a gorgeous show on limestone banks with its crimson flowers. Abundant at the Croft, Mathon, with my friend John Roby, Esq., of Malvern.

Wild thyme (*Thymus Serpyllum*) and lady's fingers, or lamb-toe (*Anthyllis vulneraria*), in flower.

"The yellow lamb-toe I have often got,
Sweet creeping o'er the banks in summer time;
And totter-grass, in many a trembling knot,
And robb'd the molehill of its bed of thyme."—CLARE.

Thyme is placed to the account of July by Hooker and Forster, while Babington truly says June.

Vicia Cracca in flower. Correctly indicated by Mr. Babington, but July according to Hooker and Steele. *Poterium Sanguisorba*. July, Hooker; June, Babington and Steele.

June 11.—*Ceanothe crocata* in full flower, and evidently been so some days. Mr. Forster indicates June 12, yet all the Floras say July, which is rather slow travelling for the present day. Time, the season, or the Floras, must be "out of joint" here. Great valerian (*Valeriana officinalis*) also in flower.

Centaurea nigra in flower. This date must be early for the *Centaurea*, but I find a strange discrepancy about it. Hooker gives June to August as the time of flowering of the black knapweed; while Babington and Steele indicate that it does not flower *till* August. This, therefore, seems very much like a case of *lapsus calami* on the part of the learned botanists last named. Sir J. E. Smith has June—August in the 'English Flora,' which is doubtless right.

Prunella vulgaris in flower. Forster and all the Floras say July.

June 12.—*Vicia bithynica* in full flower at Alfrick. The Floras, all to leeward, indicate July. *Knautia arvensis* in flower. This must be an acceleration, as Forster and all the Floras give July. *Verbascum thapsus* in bloom at the top of its spike. The Floras say July, but Forster indicates Midsummer-day.

Carduus acanthoides and *palustris* in flower. Babington accurately states June for the former, but joins with Hooker and Steele in stating July for the latter. Forster, more precisely, says early in June.

Hypericum hirsutum in flower. The St. John's-worts are well

known solstitial flowers, generally keeping pretty true to Midsummer, but certainly earlier this year. The Floras all indicate July, and yet, as Mr. Forster truly observes, "coming into flower about St. John the Baptist's-day (June 94), they have thence derived the name of St. John's-wort."

Crepis virens in flower. The fairy-ring agaric appeared this day as the first fruit of the recent showers, and perhaps indicative of others to come. Storms of rain indeed followed till

June 15.—*Geranium pratense* in flower. Mr. Forster and the Floras all agree here.

June 19.—*Ballota nigra* in full flower. The Floras not to time again, and Mr. Forster himself behind. The meadow-sweet (*Spiræa Ulmaria*) has commenced flowering. Forster and Babington agree as to this beginning flowering in June, but Hooker and Steele give the later period of July.

June 20.—*Galium Mollugo* and *palustre* in flower, the latter fully so. The common name Mr. Forster says should be "our" Lady's Bedstraw, as the Virgin Mary was originally intended. Forster and all the Floras say July for both species.

Many of the composite plants are now in bloom, and among them in woody places appear *Hieracium murorum* and *Lactuca muralis*. The latter would seem to be in advance, as the Floras intimate July for it, yet Forster with more exactness says it begins to show early in June. *Lapsana communis* is also in full flower, leaving the Floras a month in the rear, but Forster again exhibits his accuracy of remark by indicating the middle of June. *Pyrethrum Parthenium* and *inodorum* are also before the time stated in the Floras.

Corncockle (*Lychnis Githago*) in full flower. The Floras agree as to June, but the 28th is the day given by Forster, who, placing it by the side of the pretty but rarer *Centaurea Cyanus*, says they only become common in July.

Hypericum pulchrum expanded this day.

Convolvulus sepium exhibits its large white bells upon the lofty bushes close to Shrawley Wood. Certainly much earlier than usual, and the Floras are right in giving July as the general month. Mr. Forster, too, remarks that the great bellbinder belongs to the æstival or late summer Flora, and flowers from July 2 to the end of September.

Deptford pink (*Dianthus Armeria*) in flower. The Floras say July, but I agree with Mr. Forster that it always begins to flower in June.

I also noticed *Reseda luteola*, *Polygonum amphibium*, and *Scro-*

phularia aquatica, to be in flower this day; all ascribed to July by the Floras I have examined.

Rubus Wahlbergii splendidly in flower, allied to *R. dumetorum*, which is also now fully in flower.

June 23.—The flowering of the various forms of bramble, perhaps more than anything else, proves the great acceleration that vegetation has received this year. July and August are the general times of flowering given by Mr. Babington, and it is seldom that any of the species flower in June except *R. cæsius*, *dumetorum*, and *sublustris*. Yet this day I observed nearly every recorded form in full flower except *R. fruticosus*; while *cæsius* and *dumetorum* were abundantly in flower in May.

June 26.—*Rubus fruticosus* (*discolor*, Bab.).—The uppermost flower in numerous panicles expanded this day. This is the latest to flower of any of our Rubi, and in backward seasons does not expand its petals before August. This is the earliest date I have ever observed it. I should remark that the uppermost flowers of the panicle in brambles always expand first, and of course first exhibit fruit; so that representations of ripe fruit on lower branches with flowers above, as in the Eng. Bot. figure of *glandulosus*, and that of *Kœhleri* in *Rub. Germ.*, are incorrect. The lower branches of the panicle are indeed often in flower when the upper are in fruit.

My flowering indications here end, as I think I have brought forward instances sufficient to prove my case, though more might have been given, and probably others have been presented to observation in localities different to my own.

I would observe, in conclusion, that in comparing my notices with the months of flowering given in the Floras of Sir W. J. Hooker, Mr. Babington, and Dr. Steele, of Dublin, I have not the slightest intention to "hint a fault" at the labours of those learned systematic botanists. I wished to establish an acceleration in the flowering of many of our wild plants this year, and there appears certainly a seasonal discrepancy between us in many of the instances which I have remarked upon. Perhaps there is more than this, and I almost think that greater precision might attach to the indications of flowering by the prefix of beginning, middle, or end, to each particular month, as the case may be. Doubtless it requires a different eye in some respects, and perhaps a mind somewhat differently moulded, to observe living objects abroad and describe at home from specimens; and the technical botanist, in his nice discrimination of species and varieties in his library, must trust to the mems. of his friends, in many

instances, for their exact times of flowering, or copy the undisputed statements of his predecessors.

If it be thought that such an exactitude as I wish can scarcely be expected in general Floras, then perhaps it might be useful to have a companion Catalogue formed somewhat on the plan of Mr. Forster's 'Flora Spectabilis,' and indicating, as he does, the "times of first flowering, full blow, and going out of bloom." This, with illustrative notes, might be rendered interesting and instructive, even beyond the circle of the collecting botanist. I only throw out the hint at present. Mr. Forster's work from which I have quoted is, I believe, now out of print, and for the pure botanist (though full of curious remarks) is rather too overloaded with weather prognostications, astronomical details, and references to saints of olden days, who, however, in many instances had their names connected with our familiar wild plants. In an interleaved catalogue of the kind I advert to, and carried out on excursions, memoranda of flowering, habitats, and other details might be at once noted, which cannot be so well done in a valuable or bulky general Flora, but which would be of great use for reference, and the more so as done at the time.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
July 4th, 1848.

A few Words on the terms Native, Naturalized, and Imperfectly Naturalized. [See Phytol. iii. 188]. By S. P. WOODWARD, Esq.

THE meaning of these terms will be sufficiently obvious to most botanists; if, however, any of your readers require an interpretation, the following remarks are very much at their service.

1. The term *native* involves the idea of the species having been originally created in the region where it is found, or of its having migrated into it by natural means, *i. e.*, unassisted by man. For example, the double cocoa-nut appears to be an aboriginal inhabitant of the Seychelles Island; whilst the common cocoa-nut has been wafted by wind and wave from island to island, extending its range every year, until we cannot trace its birth-place. Again, there are some geological reasons for believing (and perhaps no botanical reasons for disbelieving) that *all* our British plants have migrated here, at some time or other, from various parts of the world; that none of them were originally created here.

The term *native* may sometimes require to be qualified, but not with regard to British plants, which all come under the same category.

2. *Naturalized species* are those which have been introduced purposely or accidentally by man, and finding conditions suitable for them, have continued to exist without artificial aid, and often in defiance of attempts at their extirpation. Some of these are medicinal plants, held in esteem long ago by monk and simpler, now only by the herbalist, such as the hellebore and birthwort, monks'hood and master-wort, belladonna, opium-poppy, and perhaps *Carduus* "*benefictus*!"

Of these the hellebores and belladonna have spread themselves over particular limestone districts, such as the Downs, the Chiltrens, and the Cottes Wolds, and so identified their distribution with undoubted natives, that I for one do not believe in their alleged modern and artificial introduction. Others are pot-herbs and garden flowers, found near the ruins of mountains, or where cottage-gardens have been; or they may have been introduced in field-crops, and have established themselves by waysides and in waste places. The list of these is numerous. I will only mention lucerne and flax and gold-of-pleasure, the winter aconite and pæony, various anemones, pinks, and honeysuckles, larkspur and candy-tuft, horse-radish and salsafie, saffron, coriander and carraway, balm and borage.

3. *Imperfectly naturalized*.—Since the time of Ray many plants have been added to the British Flora, and every year adds to the list species which require, next year, to be struck off. Foreign vessels leave ballast-heaps on our coasts, upon which spring up a harvest of plants unknown before, and which are seldom found until farmers buy foreign flax and clover-seed, and then come the new dodder and Orobanches, grasses, and composite plants, many of which, fortunately, do not ripen their seed in England before they are removed with the crop, and hence they have not become "*naturalized*."* It is probable that many plants which are notoriously on the increase, like the nettle, *Chenopodia*, and *Chelidonium majus*, require more nitrogenized matter than exists in untilled soil; and this is why so few of the field and garden crops become permanently naturalized. Buckwheat, maize, hemp, and *Solanum tuberosum*, would be a grand addition to the British Flora, quite on a par with the *Eschscholtzia*, *Impatiens*,

* The solitary service-tree in Bewdley Forest has now quite lost the chance it had for several centuries of multiplying itself and becoming "*permanently naturalized*."

Mimuli, and Martagon lilies, which are registered as growing for a season on some lonely rubbish-heap. That a great many plants lately introduced into this country are fairly in the way of becoming "naturalized," cannot be doubted; but it is well to keep them in a provisional list till they have proved their qualifications for permanent residence in their adopted country.

Amongst the doubtful natives there is one for which I wish some botanist would speak a good word—the chesnut; perhaps some day it will be found in that old and little-explored herbarium the tertiary strata, although Mr. Bowerbank has failed to pickle any from Sheppy; and meanwhile it might be inquired whether any of our ancient structures, like the roof of Westminster Hall, were built of home-grown chesnut, or whether it is only the sessile-flowered oak timber, as Mr. Cooper suggested.

Those who live in the country, especially in the eastern counties, will witness, not without regret, a change going on in the distribution of our wild plants, which threatens to be as complete as any change related by the geologist. Every year the habitats for the more interesting plants, those which have small power of multiplying or migrating, become fewer, and half a century hence botanists will doubt whether the *Pyrola*, *Vacciniums*, *Andromeda*, *Convallaria multiflora*, *Oreopteris*, *Lycopodia selago* and *clavatum*, &c., ever grew in Norfolk. In their place we shall have a number from amongst that kind of plants which in the 'London Catalogue' are said to be "imperfectly naturalized."

S. P. WOODWARD.

July, 1848.

Note on the Loose and sometimes Incorrect manner in which the Time of the Flowering of Plants is given in our Manuals of British Botany. By C. DREW SNOOKE, Esq.

I do not know whether in the pages of the 'Phytologist' attention has been at all directed to the loose and sometimes incorrect manner in which the time of plants' flowering is given in our Manuals of British Botany. A greater degree of exactitude in this respect seems highly desirable, and would, I presume, be easily attainable, if those botanists who, like myself, are but tyros in the science, were to have their attention directed to this subject as one within the compass of

their abilities, and were to carry on for a few years a series of observations on the beginning and ending of the time of flowering of all those plants that may be situated conveniently for observation in the locality of each observer. In each year an observation should be recorded of the earliest day the plant was observed to flower, and the latest day on which it was seen in blossom, and after some years a comparison of these observations would give an average day for a commencing and terminating date, which might be inserted in our botanical manuals thus, May 12—July 5; instead of the vague “June and July,” &c., as at present.

It is likely, however, that a considerable difference in the flowering time of the same plant would be observed in distant parts of Britain; in some plants more than in others.

A few days ago, June 20, I walked a distance of eleven miles and back to obtain a specimen of buckbean (*Menyanthes trifoliata*), and was much disappointed on reaching the spot at being unable to find a single flower; there were some flowering stems with fruit in various stages of maturity. Yet in Hooker’s ‘British Flora’ and other works this plant is stated to flower in June and July.

I trouble you with these remarks in the hope that you or some equally competent person may be induced to bring the subject before the readers of the ‘Phytologist.’

C. D. SNOOKE.

Newport, Isle of Wight,
July 3, 1848.

[Our correspondent will find observations on the same subject in various numbers of the ‘Phytologist.’ We think it one of far greater interest than our leading botanical writers, *i. e.*, Hooker and Babington, seem to consider it. In neither the ‘British Flora’ nor ‘Manual’ do we find evidence of care or of personal observation in the records of the time of flowering: it is our individual opinion that care and personal observation are needful in every branch of the science; and we have frequently wished the dates of flowering in these two works wholly expunged, or, what would be perhaps still better, introduced here and there from the actual observations of the writer. Why should not the dates be given with a view to positive utility, instead of being introduced like the numbers preceding the specific name as a mere matter of form?—ED.]

Notes and occasional Observations on some of the Rarer British Plants growing wild in Hampshire. By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

IN presenting the readers of the 'Phytologist' with the following list of Hampshire plants, my object has been to promote our knowledge of the geographical distribution of the species in Britain, which important branch of philosophical Botany is now, through the impulse happily given it by the labours of Mr. H. C. Watson, beginning to receive its due share of attention in this country. The time is gone by when such catalogues are to be viewed and their utility measured by their fitness as vehicles for the communication of mere *rarities* to the collector. For this reason it is that so many of the plants now enumerated are such as must be called common in Hants and the adjacent counties, but as restricted in their general range over the kingdom, the epithet is to be understood in the same limited sense.

An early communication of this catalogue having been requested by the editor, it is offered in a less complete state than I could have wished. Some habitats are omitted for want of time to look over the lists and notices I have been favoured with from numerous correspondents, whose kind and zealous co-operation I shall have the pleasing duty of gratefully acknowledging in another place. These omissions, with I hope some new accessions to our county Flora, I trust to supply when the last part of these notes goes to press. Many of the older stations recorded in Turner and Dillwyn's 'Botanist's Guide' are copied from the 'Hampshire Repository,' and are generally attributed to Dr. Pulteney. I have taken them from the original and now very scarce volumes, for the perusal of which I am indebted to the kindness of a friend in Ryde. When the locality for a plant is not followed by the name of an observer, the occurrence of the species therein rests on my own authority, as having been personally seen there; in all other cases the name of the first discoverer or recorder is subjoined, either followed or not by one, two, or three notes of admiration. When no such interjectional sign is placed after a name, the station and species are taken on the sole credit of the observer. A single (!) implies that a *dried* specimen has been seen from the alleged habitat; two such marks indicate the receipt of a *fresh* or *living* example; and three, the verification by myself of both plant and station. Plants certainly introduced are marked (‡); those doubtfully indigenous with a (†), as being the signs usually employed for this purpose.

Clematis Vitalba. Most abundantly throughout the county, and the Isle of Wight, wherever the soil contains any notable proportion of calcareous earth; our thick tufted hedgerows often seeming as if weighed down by the oppressive luxuriance of this very ornamental climber.

Thalictrum flavum. Apparently rare. Oram's Harbour, Winton; Mr. W. Whale! Near Southampton and at Shawford; Miss G. E. Kilderbee. Hill Head; Mr. W. L. Notcutt. Twyford water meadows; Dr. A. D. White. Near Wickham and Droxford; Pulteney, in Hamp. Rep. Extremely rare in the Isle of Wight.

Myosurus minimus. Corn-fields and waste ground. Near Bishop's Waltham, and probably not rare on the mainland of Hants. Very common, and in some years most abundant, in the Isle of Wight.

Adonis autumnalis. Corn-fields. Matterley Farm; Dr. Pulteney, in Hamp. Rep. Wonston and Bullington; Rev. D. Cockelton. In several parts of the Isle of Wight, but rare.

Ranunculus Lingua. Sowley Pond; Mr. R. Jefferd. In several places in the Isle of Wight, but not general. Water meadows between Lord Rodney's Park and Bishop's Sutton, plentifully; Mr. H. C. Watson.

———— *hirsutus*. By the baths at Lymington; observed on a late visit to this my native town, and during an unsuccessful search for the long-lost *Scirpus parvulus*. Isle of Wight, but not common.

———— *parviflorus*. About Lymington and Southton, in various places. Andover; Mr. W. Whale. Very frequent in the Isle of Wight.

———— *arvensis*. Common in the county. Much too abundant in the Isle of Wight in the corn-fields of our slovenly farmers.

† *Helleborus viridis*. At Langrish, near Petersfield; Miss G. E. Kilderbee!!! but I am not quite satisfied that it is truly wild there. Wood at Tigwell, near West Meon; Miss E. Sibley!! I have heard of other stations, either for this or the following species, in the neighbourhood of Petersfield, but am not yet sufficiently informed on the subject to communicate them here.

———— *foetidus*. Truly wild but not common in our vast beech woods, called in the county "hangers";* where it occupies the steep sloping sides of the chalk hills, as I have seen *H. niger* do those of the Apennine and Austrian Alps. Selborne, as noticed by White.

* In this word the *g* is pronounced as if belonging to the second syllable, han-ger, not to the first, as in its more commonly known meaning.

Aquilegia vulgaris. Woods and copses, also in furze brakes in places innumerable in the county. Truly wild in upland situations; rarer and perhaps generally naturalized in the lower more enclosed country. Bordean. Near Hambleton; Dr. Pulteney, in Hamp. Rep. Sinkhorn's Coppice, Otterbourne; Miss A. Yonge. Near Fordingbridge; Miss May. About West Meon, with white, red, and blue flowers; Miss E. Sibley. Hockley; Miss L. Legge. Wherwell Wood, near Andover; Mr. Whale. In various parts of the Isle of Wight; truly indigenous.

†? *Delphinium Consolida*. Corn-fields occasionally, but rare. Near Andover; Mr. W. Whale. Very rare in the Isle of Wight, and probably brought in with seed corn.

‡ *Aconitum Napellus*. Naturalized in wet ground in a few places both in the county and Isle of Wight; but certainly this alpine plant is nowhere native in Hampshire. Near Warnford; Rev. E. M. Sladen.

†? *Berberis vulgaris*. Pinglestone Down, near Old Alresford; Mr. J. Forder! but not having yet seen the station, I cannot say whether this shrub is indigenous there or not. Very rare in the Isle of Wight, and I think certainly *not* wild in its only locality, a field hedge near Thorley.

Nymphaea alba. Not, I believe, rare on the mainland of the county, though with the following unknown to the Isle of Wight in a wild state. Abundant with *Isnardia palustris* in a pool just out of Brockenhurst towards Lyndhurst. Ditches near the Grange Farm at Gomer Pond, Gosport. Near Titchfield and Romsey; Dr. Pulteney, in Hamp. Rep. Newbury Common, near Hurstbourne; Miss Hadfield! Cultivated for ornament in the Isle of Wight.

Nuphar lutea. Pool at Embley, near Romsey, 1844. Boarhunt Mill; Dr. Pulteney, in Hamp. Rep. Unknown in the Isle of Wight, though I have no reason to suppose it rare in the county generally.

Glaucium luteum. Common on the Hampshire coasts, on both sides of the Solent.

Chelidonium majus. I mention this plant because though common in most parts of England, as well as on the main land of Hants, it is decidedly the reverse in the Isle of Wight, where, if it cannot be called exactly rare, it is at least extremely local.

Papaver hybridum. Frequent and sometimes abundant in the Isle of Wight, and probably on the mainland of Hants. All the other species, excepting *P. somniferum*, are common weeds throughout the county. The latter comes up copiously at Ventnor, Isle of Wight, wherever the ground is disturbed for building, with single, full or

double, white or purple, flowers. These flourish for a season, and then disappear till a new crop is brought to light by the same artificial agency.

Corydalis claviculata. In woods, thickets, and on moist shady banks, both on the main and Isle of Wight, but not common. Plentiful near Netley Abbey, and elsewhere about Southton. At Sowley Pond; Mr. R. Jefferd!

Fumaria capreolata. In the Isle of Wight, pretty frequently. Most likely not rare on mainland, Hants, but I have not myself yet remarked it.

Matthiola incana. Abundant and truly wild on cliffs of chalk and green sand on the southern and western coasts of the Isle of Wight, firmly rooted on the often perpendicular face of the naked chalk rock, defying all the blasts and storms of winter to dislodge it, and scenting the evening breeze with its delicious fragrance in spring and early summer. Mr. Babington describes the flower as "dull pale red;" I find them, on the contrary, of a full purple, with a rich velvet-like lustre, though liable to vary in intensity. He has very properly marked the wild plant as perennial, many stems occurring of several years' growth, as thick as the wrist and perfectly ligneous.

†*Cheiranthus Cheiri*. Common in the county and island on old walls and buildings, but not looking like a true native.

†? *Barbarea præcox*. Quite a weed in very many parts of the Isle of Wight; on banks, fields, and even in woods, the ground being often completely yellow with it. It is known here as "bank cress," and is very superior to *B. vulgaris* as a salad herb, from its greater pungency and more delicate flavour. The latter is a far less common species here, and chiefly confined to sides of streams and ditches; the other is said to have been originally introduced to England, but is now as completely naturalized as any of our indubitable natives. I have once or twice fallen in with a specimen of a *Barbarea* having the pods appressed, possibly the *B. stricta* of the 'Manual of British Botany,' but my very few and imperfect specimens, quite out of blossom, have not put it in my power to decide on their identity with this last.

Turritis glabra. I searched carefully for this plant, by directions kindly given to me by my friend Mr. W. Pamplin, the discoverer of it in the county, betwixt Froxfield and Privet, but without success, owing doubtless to the want of sufficiently minute indications, which the lapse of many years made it almost impossible for him to afford.

Arabis hirsuta. Abundant about Winchester; Dr. A. D. White! Isle of Wight, chiefly at Newport and about Carisbrooke Castle; very local.

Cardamine amara. Side of river between Titchfield and Hill Head; Mr. W. L. Notcutt. Absent from the Isle of Wight Flora.

†? *Hesperis matronalis.* Near Warnford; Mr. Vickery. Formerly gathered at Bonchurch, Isle of Wight, I believe by Mr. Dawson Turner; and more recently, at the same place, by my friend John Curtis, Esq., who has figured the specimen in his exquisite work on British Entomology, vol. x., t. 435. I have never yet seen this species myself in the county, and doubt its claim to be considered as native. It occurs plentifully in the grounds at Old Park, in this island, but too manifestly a stray from the flower-border to warrant its admission even as a naturalized species.

Brassica oleracea. Very rare at Ventnor, Isle of Wight, but extremely sparingly, in one station only. A specimen or two here and there on the cliffs occasionally.

Diplotaxis tenuifolia. Abundant on old walls at Southampton. Not found in the Isle of Wight.

† *Alyssum calycinum.* In plenty in a field near Bury Hall, Alverstoke, on the way across the fields from thence to Privet; Miss L. S. Minchin! The ground was in corn this year when I visited the station, but the plant may reappear after harvest, or when next in lay. It was growing, I understand, with *Camelina sativa*, a curious circumstance, as that plant is thought only to be found in flax-fields with us. On the continent it is not restricted to that crop, the culture of which has long been abandoned in this part of England.

Cochlearia danica. Abundant on the flat shore of Stokes Bay. Very rare in the Isle of Wight. On High Down at Freshwater.

†? *Armoracia rusticana.* Meadows and pastures in several parts of the Isle of Wight; in some of its stations having much the look of a native, but seldom flowering in any. More commonly it is found near houses, and was formerly abundant and still maintains its ground in the stiff soil of the Dover at Ryde, but never blossoms there.

Thlaspi arvense. Fields in the Isle of Wight, but very local.

Teesdalia nudicaulis. Southsea Common; Mr. Hudson! Plentiful on the shore at Anglesea; Miss L. Minchin!!! Abundantly on sandy heaths and commons between Farnham and Petersfield; Mr. W. Pamplin. Not yet observed in the island, but I can scarcely think it is really wanting here.

Lepidium campestre. Extremely common in cultivated fields on

hedge-banks and waysides in most parts of the Isle of Wight, and I believe not rare in the county generally.

Lepidium Smithii. On banks and dry waste ground in many parts of the main and island. Frequent about Lymington and Southton.

It is remarkable that in framing the specific characters betwixt this species and the last, one of the most obvious and therefore best diagnostic marks has been overlooked by British writers, almost the only ones who could be expected to discover this striking difference in the habit of *L. Smithii*, since it is unknown over the greater part of the continent in a wild state. In *L. campestre* the stem is erect and simple, or copiously and corymbously branched in a very regular manner, the branches being straight and somewhat erect and forming a level top. In *L. Smithii* the usually numerous stems are always either ascending, inclining, or at most suberect, more commonly spreading or decumbent, and when not simple, branched only at the summit, the branches fewer, shorter, curved upwards and divaricate or spreading, not as in the other erect and forming a regular paniculate corymb.

———— *rudemale*. Near Southton, as mentioned in Bot. Guide !!!

Senebiera Coronopus. A very common weed under walls and in waste ground throughout the county and island.

———— *didyma*. Rare? In great abundance under walls and on sea-banks along the east shore of the river at Lymington, for perhaps a couple of hundred yards below the last houses. Very rare in the Isle of Wight at East Cowes, and now I fear almost extirpated by building. Andover; Mr. W. Whale! a remarkably inland station for a plant commonly found only on or near the sea coast.

Crambe maritima. On the shore at Calshot Castle, where the plant is blanched by covering it with the sand, and so prepared is sent to the London markets. Western Court; Dr. Pulteney, in Hamp. Rep.

Reseda lutea. Not rare in the chalky parts of the county. Very common about Andover, and from thence to the Andover-road station. Rather uncommon in the Isle of Wight, where *R. luteola* is, on the contrary, of sufficiently frequent occurrence.

Viola odorata. Extremely common in woods, hedges, and thickets, throughout the entire county and Isle of Wight, rare in the latter with blue flowers, they being here usually white or pale lilac. I cannot see the propriety of printing this humble but fragrant favourite of spring in the 'London Catalogue of British Plants' in italics, as a suspected alien. No plant is, in my judgment, more perfectly wild than the sweet violet in this and in many other of our southern counties

at least, though I do not take upon myself to answer for its being so in the more northern ones, having never directed my attention to the point when a resident in those parts of the kingdom. I suspect, however, it is truly wild throughout Europe up to at least 55° of latitude; and till within these very few years it was always permitted, as far as I can find, to enjoy its claim to aboriginality unquestioned; nor can I perceive any just cause why such claim should now be set aside after having passed unchallenged from time immemorial.

Viola hirta. Common in most parts I believe of the county. It covers the ground in large patches on the most exposed parts of Longwood Warren, near Winchester. Abundant in many parts of the Isle of Wight.

— *palustris*. Cold, wet, boggy thickets in the Isle of Wight, but very local, though abundant where found.

— *lactea*. New Forest, near Boldre. On a heath near Curbridge, Bishop's Waltham (Curbridge Common?). Very rare on heaths in the island.

— *tricolor*, var. *arvensis*. This is mentioned here because it is the only form known to me of this very common plant inhabiting the Isle of Wight or the mainland of Hants. Though many, rich, rare, and lovely are the wild flowers of the south, we cannot here gaze or recline on those "pansied" banks which breezes fresher than our own fan into bloom and beauty in the north. The wild heartsease is here an insignificant corn-flower, the least attractive of any in the chaplet on the brow of Ceres.

Frankenia levis. Abundant near Portsmouth on banks and in flat, salt-marsh ground. In similar places and on chalk cliffs in the Isle of Wight, but very local. The leaves are erroneously described as linear, being in truth oblong, and only linear by the revolution of their margins; this part of the specific character should be framed accordingly.

Parnassia palustris. This elegant plant formerly grew on a tract of boggy ground, called William's Moor, close to Ryde, but long ago drained and converted into excellent pasture and arable; Mr. J. Lawrence. I have never found it since in any part of the Isle of Wight, or heard of its occurrence within the county.

Drosera rotundifolia. Common in bogs, both here and on the mainland.

———— *longifolia*. Gomer Pond, in plenty. Embley, near Romsey. In bogs on the New Forest, as all about Tachbury Ower, &c., with *D. rotundifolia*; Mr. W. Pamplin. About Titchfield; Mr.

W. L. Notcutt; and in various other places. Not found in the Isle of Wight.

Drosera anglica. Forest of Bere; Dr. Pulteney, in Hamp. Rep.

Tamarix gallica (*anglica*?). Erroneously introduced as growing at Hurst Castle: and Freshwater must be expunged from the Hampshire Flora, being only known in cultivation as an ornamental shrub within the limits of the county.

N. B. *Elatine hexandra* and *E. Hydropiper* grow in Frensham Pond, Surrey, close upon the Hampshire border, and may be reasonably expected to occur in the latter county.

Dianthus prolifer. In some abundance on the turfy parts of Ryde, Dover, where I have seldom failed to see it for these last ten years, though not always in equal plenty. First noticed there I believe by C. C. Babington, Esq.

———— *Armeria*. Gravelly and sandy fields; rare. I have one or two mainland stations for this species, but cannot at present refer to my authorities. Very rare in the Isle of Wight, though truly wild there.

† *Saponaria officinalis*. At Odiham and between Cheriton and Bramdean; Dr. Pulteney, in Hamp. Rep. Freefolk; Rev. G. F. Dawson. I have not as yet seen any Hampshire station for this plant, and cannot pronounce upon the claim of the species to be called wild with us. The tendency in the flowers to become double is so frequent as perhaps to furnish no strong argument against its title to reception when the locality itself is above suspicion. In this island the *Saponaria* is obviously introduced and but very sparingly naturalized.

Silene anglica. Abundant in many parts of the Isle of Wight in sandy corn-fields, and extremely plentiful amongst turnips at the close of summer. Of this we have two well-marked forms. 1st. An upright variety, which I call *stricta*, with very erect often simple stem, and erect or diverging branches; the capsules on diverging, not reflexed pedicels. This, which with Mertens and Koch (*Deutschland's Flora*) I take to be the *S. gallica* of authors, is more commonly met with amongst corn and summer crops, though sometimes with the following later in the year. 2nd. Var. *autumnalis*. Stems diffuse or procumbent, pedicels (in fruit) finally deflexed. This is a large coarse plant, quite unlike the former in habit, with long, straggling, much branched stems, two or three feet in length, and much larger, more spreading leaves; abundant in cultivated (chiefly turnip) fields at the close of summer, flowering on till destroyed by the frost. I can find no structural difference betwixt these two forms beyond those of habit,

which I am inclined to think derive their origin from the season, the coldness and humidity of the late autumnal month producing a succulent and plethoric state of the plant and a greater development of all its parts. I nowhere find the latter variety distinctly mentioned as such, remarkable as it certainly is.

Silene nutans. Shores of Stokes Bay, Gosport. Abundant on sandy banks in Sandon Bay, Isle of Wight, and on the brow of a steep precipice above St. Lawrence, where it was first remarked by John Curtis, Esq., author of the beautiful work on British Entomology.

— *maritima*. Abundant in Stokes Bay. Rare in the Isle of Wight at East Cowes, &c. Surely distinct enough from *S. inflata*?

— *noctiflora*. Said to be found at Alverstoke. Brown Down in Stokes Bay; Miss Jane Garrett. I have not yet seen Hampshire specimens, but hope to report it a native ere long.

Lychnis vespertina.

— *diurna*. Both these are extremely abundant in the Isle of Wight, though dissevered in many parts of Britain. Surely very distinct as species?

Spergula subulata. Isle of Wight, rare, on high gravelly or stony pastures.

— *nodosa*. Wet sandy ground. Rare in the Isle of Wight.

Alsine peploides. Abundant on the Hampshire coasts.

Stellaria glauca. Bogs on the borders of Hampshire towards Farnham; Mr. O. Newnham.

Moenchia erecta. Profusely, and whitening the ground on many parts of the shore in Stokes Bay. Abundant on many of the Isle of Wight downs, at some hundreds of feet elevation.

Malachium aquaticum. Plentiful, but rather local in the Isle of Wight in wet places, damp thickets, &c.

Cerastium arvense. Abbotston Downs (near Old Alresford); Mr. W. Pamplin.

[To be continued].

W. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
July 5th, 1848.

Supposed Scotch Locality for Asplenium fontanum. By the Rev.
W. T. BREE, M.A.

I WISH to put a question to you on the subject of a somewhat doubtful species of British fern. But first of all, having the pen in

my hand to write to you, I cannot resist the inclination I feel to offer you my thanks for your critique on Mr. Andrew Jackson Davis's 'Principles of Nature'* in the June number (Phytol. iii. 149). Judging from the extracts which you have given from that work, and this is all I know about it, I cannot for a moment suppose that it ever can become popular among the readers of the 'Phytologist,' or even be perused by them without disgust. However, you have done well in warning botanists against such pernicious absurdities; and I cannot but applaud you for having on this occasion dropped the editorial *we*, and for speaking out *in propria personâ*. But now to turn to the fern, which is a more agreeable subject. Are botanists aware of any native habitat of the *Polypodium fontanum* of Hudson (*Asplenium fontanum* of Francis)? or is it not generally believed that this elegant species is no longer to be found wild in Britain, if indeed it ever had a legitimate claim to be considered native? In the first edition of your 'History of British Ferns' you notice the plant, incidentally, as I may say, among your preliminary remarks at p. 4, and give a figure of it at the foot of the page; but it seems to have been entirely omitted in the second and enlarged edition. On a visit a few weeks ago to Lady Maria Finch, at Boxley Abbey, near Maidstone, I observed in her garden a living plant of *P. fontanum*: upon asking the gardener, a very intelligent Scotchman, where the fern had been procured, and remarking at the same time, that, of course, it was of foreign, not British origin, he assured me he received it from a friend in Scotland, who had gathered it in a spot where he had himself previously found it in some abundance. I took down from his mouth in pencil the exact locality for the fern; but regret to say that I have accidentally lost the memorandum, and my memory will not serve me to state even the county in which this rarity is still to be found. The present most unsatisfactory notice, however, may serve to put botanists on the look-out, and may prove the means, perhaps, of reinstating a supposed lost species to its rightful place in the list of British ferns.

W. T. BREE.

Allesley Rectory, July 6, 1848.

* I have received a number of letters expressing similar sentiments to those of Mr. Bree, but I am not aware that any others were designed for publication.—*E. N.*

Occurrence of Potamogeton rufescens and P. prælongus near Kelvedon. By E. G. VARENNE, Esq.

THE remark of the Rev. A. Bloxam in the last number (Phytol. iii. 183), that "a botanist may almost every year be finding something new in his neighbourhood," will be acknowledged to be true by most of those who have followed the calling of field-botanist for any length of time. It has often been my lot to wander by the banks of the meandering Blackwater during the last ten or a dozen years, without being able to discover any other *Potamogeton* than *Potamogeton lucens*, growing in abundance in the stream. Circumstances lately induced me to make a more accurate examination of our river pond-weeds, and the result is that *Potamogeton lucens* is really uncommon for about two miles of the course of the river as it surrounds the village of Kelvedon. Its place is supplied by *Potamogeton rufescens*, which presents itself in large masses in the bed of the river. Very few floating leaves are formed under such circumstances, and the flowers are elevated above the surface of the water without these appendages. My attention was first attracted to this circumstance by a plant which I was fortunate enough to discover while in the company of a fellow botanist, Mr. Bentall, in a pond near Mark's Hall, Coggeshall, in which there were as many stems in flower without floating leaves as there were with them. The wingless stipules, equal peduncles, and the form of the leaf, clearly distinguish this variety of *rufescens* from *Potamogeton lucens*. In drying, whether furnished with floating leaves or not, the peduncles, uppermost leaves, and stipules, assume a purplish tint.

There is also at the present time a fine bed of *Potamogeton prælongus* in full bearing in one situation, where it is surrounded by plantations of *Potamogeton rufescens*. The long peduncles and branched habit of *Potamogeton prælongus*, with the remarkable tips of its leaves, and their unequal size, together with the entire submersion of the plant, are abundantly characteristic.

E. G. VARENNE.

Kelvedon, July 11, 1848.

Notice of the Discovery of Filago Jussii near Saffron Walden.

By G. S. GIBSON, Esq., F.L.S.

THIS plant I gathered four or five years ago, about eight miles from this town, observing a very marked peculiarity in the manner of its growth, but not properly examining it at that time, passed it over as simply a variety of *F. germanica*, and have specimens of it so labelled in my herbarium. My attention was again called to it a short time ago by Joshua Clarke, when on a botanical excursion in Cambridgeshire, and on examining the specimens brought home, and comparing them with those of *F. germanica* from the same locality, I was at once convinced that it was a distinct species, and probably *F. Jussii* of Cosson and Germain. This opinion has been confirmed by several of our most eminent British botanists, and I have since been informed by one of them that it has been found simultaneously in Dorsetshire and Sussex. The locality for it in this neighbourhood is road-sides and cultivated fields, on a sandy soil, in the borders of Cambridgeshire and Essex. It frequently grows intermixed with *F. germanica*, but always, so far as I have observed, preserves its distinctive characters. Whether or not it is similar to the one called *F. apiculata* by G. E. Smith, and described in a former number of the 'Phytologist' (Phytol. ii. 575), I am unable to decide, for although it appears to agree in some respects with that description, yet in others there is a decided difference.

The following are some of the more striking points by which it may always be readily distinguished from *F. germanica*. Heads with much fewer flowers, often not half as many as in *F. germanica*, generally less cottony, particularly the young heads, which are overtopped by the leaves. Flowers much larger, rather paler in colour, and sharply pentagonal. Involucral scales rather broader. Leaves broader, not spear-shaped, as those in *F. germanica* always are, but spatulate, broadest near the end, apiculate, narrowed towards the base; more loose and spreading on the stem. Stem much more branched, branches spreading, nearly horizontal in old plants, slightly ascending in young ones. Probably it will be found to be not an uncommon plant on light soils.

G. S. GIBSON.

July 12, 1848.

On the Geographical Distribution of British Plants.

By the Rev. W. H. COLEMAN, M.A.

MUCH valuable advice has been given to the authors of local Floras in the several works of Mr. Watson, and the present writer has largely profited by his suggestions. Having been long engaged in a work of this nature, and therefore having, as he trusts he may say without presumption, acquired some experience, he has thought that some account of the method pursued by himself and his colleague may be acceptable to the readers of the 'Phytologist,' and useful to those who shall hereafter be engaged in any similar work.

In collecting materials for a Flora of an English county, it was soon discovered that the work would be extremely imperfect, as a view of the botanical productions of the county collectively, unless not only diligent search had been made for the *rarer* species in every part of it, but also some security could be given that the prevalence of the plants presumed to be *common* was uniform throughout it. Some years after observations had been commenced, it was found that so little progress in this respect had been made, that if the materials had then been published, the work could hardly have been called a Flora of the county, but merely one of two or three of the principal towns, with some scattered records of the rest of the county. It was no satisfaction, however it might have proved an excuse, to observe that many others of our local Floras were liable to the same objection; and it was therefore determined to seek a remedy for the defect.

The first plan that suggested itself for this purpose was that of forming catalogues of plants found within a circle of five miles radius round each of the principal towns of the county. But upon tracing these circles on a map it was found that some of them would partially overlie one another; while large tracts remote from any large town would still be excluded. Some plan was therefore sought which should not be liable to either of these objections. And first the purely geometrical one was tried of dividing the whole county into a series of irregular hexagons, by joining the points dissecting the distance between every two adjacent principal towns. This was easily enough done on the map, but was found to be useless in the field, and after some trial was given up. The old political divisions called hundreds were proposed, but found too arbitrary: and unions of parishes were found to give unnatural districts difficult to determine in the field. It was therefore at length determined to adopt some purely natural divi-

sion, which might readily be marked upon any good map at home, and easily be recognized by a good eye in the field. And a system of division founded upon the river drainage was preferred to all others, as on the whole most likely to give useful botanical results, and as falling in with Mr. Watson's system of provinces, of which indeed it was the carrying out into particulars. After some consideration, and some changes, the county was divided into twelve districts, averaging about fifty statute square miles each, and consisting as far as possible of the basins, or definite portions of the basins, of the principal rivers.

All former observations on the frequency of the more ordinary species were now considered as relating exclusively to the home district; and for the others, when catalogues could not be obtained from resident correspondents, expeditions were undertaken to them for the purpose of ascertaining their common, as well as rare productions. As soon as the number on record in any district approached 400, the still unobserved species which seemed likely to occur there were formed into lists of desiderata. Some curious features, which had formerly escaped notice, or were matters of mere surmise, now began to come to light, or to receive confirmation. *Digitalis*, *Conium*, *Potentilla argentea*, *Artemisia vulgaris*, *Carex paniculata*, and others which the experience of the home district alone would have set down as common, were now found to be either wholly wanting or very scarce in some of the districts: while others, as *Trifolium fragiferum*, *Ophrys apifera*, *Carex axillaris*, &c., which home experience had seemed to prove rare, were found to be widely distributed over the county: and scarcely a fourth part of the whole Flora was found to be so universally distributed as to occur in every one of the twelve districts. Another advantage of the plan was that the desire to obtain as complete a list as possible for each of the districts induced repeated excursions into most of them in succession; whereby not only were their recorded Floras increased, but new species and new stations for the rarer ones were frequently brought to light: and that correspondents, having a local interest in the reputation of their respective districts, were stimulated to increase their diligence. And thus, though the more distant districts could not be expected to be equally well explored with those nearer home, the Flora of the county is at least in a great measure rescued from the reproach which it would otherwise have been susceptible of, and can no longer be charged with offering a single brick as a specimen of the whole house.

In fact, the plan of subdivision above detailed has been found to be attended with so much advantage, that the adoption of one of a similar

kind is strongly recommended to all botanists about to undertake the task of compiling county Floras. For experience has shown that it is almost impossible for any one person, however active, satisfactorily to examine an area of more than four or five miles radius round his own residence, unless he has unlimited command of time. Any county therefore proposed to be examined should be divided into as many districts, of from fifty to eighty square miles each on the average, as it conveniently and naturally can be. Even much smaller districts than this would often be desirable, if there were any reasonable probability of obtaining catalogues of their productions. But as there are comparatively few botanists in any one county who are capable of forming such catalogues, and the editor-in-chief will generally be driven to rely very much on his own observations, he will be forced to diminish the number and increase the size of the districts beyond what would be advantageous if practicable.

It may be useful to add an account of the method pursued in cataloguing the plants of a district. A book was prepared containing the county list in single columns, with twelve ruled columns on the same page, corresponding to the number of districts. Some promising spot, as central as possible within any district, was then repaired to, and the observer started on his walk with a small vasculum in hand, in which he deposited a small characteristic "pinch" (no larger than was absolutely necessary for identification) of every species that occurred. When the box grew full, or a convenient halting-place was reached, the prepared list was taken in hand and deliberately read through: and as often as it occurred to the memory that such a species had been gathered, a figure corresponding to the number of the district was entered in the proper column opposite to its name. When the list had thus been gone through seriatim, the collecting box was opened, and its contents singly but rapidly removed; and if it was doubted concerning any of them whether or not it had been recorded, the book was referred to. This was seldom necessary with a tolerable memory, not more than 1 per cent. being generally omitted in the first marking. The box being emptied, the walk was renewed and a second collection made of everything not previously recorded. In this manner as many as 300 species have been catalogued in a single day. If two hunt together this process is much expedited, and in default of leisure of the principal, at any particular season, the services of a beginner may be made use of, to bring or send from the district a fragment of every species he may meet with.

After a considerable number (about 400) had been catalogued, a

“desiderata list” was formed for each district. These were arranged in six classes, which were found very natural and convenient in practice; namely, 1. Arvenses, *i. e.*, corn-field plants; 2. Pratenses, meadow and pasture plants; 3. Sylvestres, or wood plants; 4. Sepincolæ, hedge and road-side plants; 5. Domesticæ, plants growing on walls or about houses; and 6. Aquatiles, marsh and water plants. With these lists in hand especial search was now made for the missing species in their respective habitats, and as they were found, they were struck out. It is obvious that these, escaping as they did the first researches, must in general have been of less frequent occurrence than others found at an earlier period; though some latitude was required for season, or the inconspicuous nature of the plants.

The data acquired in the course of the investigation of the Flora of the county in question on the above plan, may serve to correct the statement of Mr. Watson (in one of his works, which the writer has not now at hand to quote with precision), to the effect that a single square mile will be found to contain half the species of a county. This, however, will be found to be a considerable overstatement, unless a square mile be selected containing every variety of soil and situation. If it be assumed that a certain number (f) of species are common to every square mile of a county, and that the remainder are uniformly distributed over it, so that every additional square mile should add so many additional species to the Flora of the list; then if F and F' be respectively the numbers in the Floras of the whole county (containing a square miles), and of any portion of it containing n square miles:

$$\text{it may easily be shown that } f = \frac{a F' - n F}{a - n}$$

For the particular county in question this formula gives 502 species common to each square mile; the whole Flora being about 900: so far more than confirming Mr. Watson's estimate. But there are two things which entirely vitiate the above calculation. For first, the law of distribution assumed makes all but the most common species equally rare, which every botanist knows to be contrary to the truth. And secondly, the square mile has been assumed to be an average one: that is, to contain clay, sand, gravel, limestone, peat, &c., arable, pasture, heath, wood, waste, streams, bog, marsh, standing water, &c., in similar proportion to the county at large: all of which it is needless to say can hardly be found in one and the same square mile. So that instead of five-ninths of the Flora being common to every square mile, the writer's experience has been that scarcely one-fourth is common to every fifty square miles. And his opinion is, that if a square mile

be taken at a venture, its Flora may be considered as a good one if it amount to as many as 200 species.

W. H. COLEMAN.

Ashby-de-la-Zouch, Leicestershire,
July 14th, 1848.

[The author of the foregoing paper was desirous of its being published anonymously, fearing that it might be considered somewhat commendatory of the 'Flora of Hertfordshire,' a work to which he obviously refers, and one which is well known to be partially, perhaps principally, his own production. Botanists will, however, at once perceive that Mr. Coleman's valuable remarks are merely explanatory, not laudatory, and that there is no necessity whatever for my departing so far from a positive rule as to publish them without his name.—*E. N.*]

Characters of Malva verticillata and Malva crispa.

By HEWETT C. WATSON, Esq.

IN the second volume of the 'Phytologist' (Phytol. ii. 936 and 973) are some remarks on the *Malva verticillata* and *crispa*, between which there was difficulty of showing good distinctive characters. Those of the fruit, explained by Mr. Borrer and Sir William Hooker, are true so far as they go; but they are little obvious unless in the perfectly mature state, previous to which the characters assigned for *M. verticillata* apply to the fruit of *M. crispa*. The distinctions afforded by the ramification, as pointed out by Mr. Motley, are very obvious in examples of the two species now growing in my garden within two yards of each other, and originally raised in flower-pots in a frame, under conditions of soil, moisture, &c. equalised as exactly as could be. Both species grew into upright simple stems, in their early stage. After they were turned out of the flower-pots into the open ground, their growth became much more luxuriant and branching. The plants of *M. crispa* continued to grow principally upwards by the elongation of the stem, which produced distant branches, also tending upwards at an angle of thirty degrees, more or less. The plants of *M. verticillata*, on the contrary, threw out several branches near the surface of the ground, divaricating from the central stem at an angle of fifty degrees, more or less, and giving that verticillate aspect to the ramification which the specific name may have been intended to denote.

These branches were much stronger on *M. verticillata*, even thicker and longer than the central stem on some of the plants; whereas those of *M. crispa* were comparatively small and short.

Besides the differences above noted and confirmed, I find some others which increase the probability of the two plants being sufficiently distinct as species. The flowers of *M. crispa* are larger, with their petals scarcely exceeding the calyx, and more widely lobed than in the other species; the axis of the fruit is elongated conspicuously above the carpels; the stem almost destitute of hairs. In *M. verticillata* the flowers are smaller, with narrower petals, which are nearly twice the length of their calyx, and the lobes of which do not divaricate like those of the former; the axis of the fruit is broader and shorter, scarcely exceeding the carpels; the stem is sprinkled with stiff hairs, disposed in a stellate form.

H. C. WATSON.

Thames Ditton, July 17, 1848.

Localities for Botrychium lunaria, and Inquiry respecting Sedum Forsterianum. By W. THICKINS, Esq.

IN the last number of the 'Phytologist' a new locality for *Botrychium lunaria* in Leicestershire is given, and as the plant is considered to grow but sparingly in Warwickshire also, it may perhaps be worth mentioning that last year I found it abundantly a little beyond Moxhall, on some heathy ground on the right of the turnpike road from Coleshill to Lichfield, and that a few weeks ago I discovered it in a similar habitat near Coleshill Pool, perhaps the same locality as that given in Newman, of which I was unconscious at the time. Last year also I saw it in quantities, though in a very dwarf state, growing with *Viola lutea* in some high pastures on Masson, near Matlock, Derbyshire. I have found it, too, near Wirksworth in the same county.

In your March number, in a remark of yours on *Sedum Forsterianum*, you say "You were not fortunate enough to meet with it at Barmouth, where Mrs. Russell records its occurrence."

The enclosed *Sedum*, which I take to be "*Forsterianum*," is from a plant I brought from Barmouth in 1837, and have had in cultivation ever since. It grew in a very dry, exposed situation, and only in a similar one have I ever prevailed on it to flower. I am therefore doubtful on reading your description of the different *constitutions* of

the two Sedums, whether it may not be "rupestre" after all. The cyme enclosed is the only one on any of my plants this year: it is not nearly so characteristic of "Forsterianum" as the cymes of former years have been, not so compact and hemispherical, but it may be enough so for your practised eye to decide that it really is the plant I hold it to be.

W. THICKINS.

Keresley, near Coventry,
July 18, 1848.

[The specimen enclosed has lost that distinguishing characteristic of colour to which I have before alluded; but although on this ground I cannot venture to pronounce any confident opinion on the subject, I may state that had not a query been suggested I should have had no idea that the plant differed from the ordinary form of *Sedum rupestre* when grown in a dry and exposed situation, such for instance as a sunny wall. In using the name *Sedum rupestre* I may as well state that I adopt it as conventionally employed by Smith, &c. I have great doubts as to its identity with the *Sedum rupestre* of Linnæus and continental botanists.—*Edward Newman.*]

Note on certain Monstrosities in Trientalis europæa.

By W. M. OGILVIE, Esq.

WHILE botanizing on the first of the present month, in Baldoven Woods, about five miles north from Dundee, in company with my friend Mr. Gardiner, we found three monstrosities in *Trientalis europæa*, L. One had two flowers enclosed in one calyx. Another had four, three of which were fully opened. The third had a number of the stamens converted into petals. Thinking that these facts may be interesting to some of your readers, I send them for insertion in the 'Phytologist.'

W. M. OGILVIE.

Castle Street, Dundee,
July, 1848.

Occurrence of Mimulus luteus near Brechin.

By W. ANDERSON, Esq.

DURING last month I collected specimens of *Mimulus luteus* on the muir below the bridge of Dun, about four miles from Brechin. The plant was in great abundance, and perfectly naturalized.

Mr. Kerr, of Montrose, has observed it growing near Dun Mill, situated near the Brechin road, for the last five years, and here also it is most abundant and perfectly naturalized.

This plant is rapidly spreading itself over the country, and now appears in some places to be quite indigenous. Although we are well aware of its native origin, and know that in Scotland it must have originally been an outcast from a garden, yet I think its claims to a place in the British Flora are now fully equal to those of *Impatiens noli-me-tangere* or *Iberis amara*.

I have forwarded these observations for publication in the 'Phytologist' because I regard the record of plants, known to be introduced, thus naturalizing themselves, as affording additional information on the geographical distribution of plants.

WILLIAM ANDERSON.

Dun Nursery, Brechin,
20th July, 1848.

[From Mr. Anderson's observations, and several others which I have met with in different journals, I am quite inclined to agree with him in regarding *Mimulus luteus* as now "perfectly naturalized" in Britain. The same may I think be said of the originally American *Impatiens fulva*. The *Mimulus* and the *Impatiens* are now to all appearance so firmly established that I believe it would be difficult, if not impossible, for man to eradicate them. Thus we have two plants whose exotic origin is admitted by all, taking up their abode amongst us, freely multiplying their kind, and bidding fair to maintain their position against all casualties. These instances certainly lead to the belief, if not to the conviction, that very many of our now-unquestioned natives may have had a similar exotic origin, and we must anticipate that the botanists of future generations will accept the *Impatiens* and the *Mimulus* as equally indigenous with those species whose introduction bears an earlier and therefore obscurer date. I do not see why we should make laws to exclude plants because we fancy we have witnessed their introduction: the loss of a rood of

ground on one coast and the gain of a rood on another, are no less a loss and a gain because they have taken place before our eyes. — *Edward Newman.*]

BOTANICAL SOCIETY OF LONDON.

Friday, July 7th, 1848.—John Edward Gray, Esq., F.R.S., President, in the chair.

The following donations were announced :—

‘Proceedings of the Linnean Society of London,’ from November 16th, 1838, to March 7th, 1848, presented by that Society ; Vols. 1, 2 and 3 of ‘Transactions of the Zoological Society of London,’ presented by that Society ; ‘Proceedings of the American Philosophical Society,’ presented by that Society ; a parcel of specimens from St. Mary’s, Azores, presented by Thomas Carew Hunt, Esq., Her Majesty’s Consul at St. Michael’s. Among the specimens are eight species not before ascertained to grow in the Azores, but all found also in south Europe. British plants had been received from W. H. Purchas. Dr. Semple, F.G.S., of Torrington Square, and John Moore, Esq., Surgeon, of Leicester, were elected members.

Mr. Thomas Sansom presented a specimen of *Schistostega pennata*, *H. & T.*, collected by him in a cave by the side of the mountain road from Capel Cerig to Llanrwst, in May last.—*G. E. D.*

THE DUNDEE NATURALISTS’ ASSOCIATION.

3rd May, 1848.—Mr. Ogilvie (the Secretary), in absence of the President, in the chair.

The ‘Flora of Leicestershire’ was announced as a donation from the author to the Association, and a parcel of plants was announced from Mr. Ogilvie.

Mr. Ogilvie read an interesting paper, being an account of three days’ botanizing on the Sidlaw hills. The more interesting plants found by Mr. Ogilvie were the following: *Andræa rupestris*, *Dicranum heteromallum*, *Diphyscium foliosum*, *Fontinalis antipyretica*, *Buxbaumia aphylla*, *Hypnum triquetrum*, *Neckera crispa* (barren), *Orthotrichum rupincola*, *Polytrichum nanum*, *Trichostomum heterostichum*, *T. canescens*, *β. ericoides*, *Arthonia Swartziana*, *Stereocaulon condensatum*, *Parmelia pulverulenta*, *Lecanora ventosa*, *Bæomyces*

roseus, *B. rufus*, *B. placophyllus*, *Peltidea venosa*, *Hysterium conigenum* (new to the county), &c.

A specimen of *Bellis perennis* appeared on the table from Mr. Lawson, the flower-head of which was oblong, and of extraordinary size. A note accompanied the specimen, mentioning that it had been gathered on the Law hill of Dundee, by Mr. William Hill.

6th June, 1848.—The President in the chair.

A paper by Mr. Anderson was read, communicating the two following new stations for rare plants. Specimens of both were exhibited.

Vinca minor. In a wood to the westward of the farm-house of Barreilmill, about two miles from Brechin, abundant and naturalized.

Carex cæspitosa. Brechin Castle Terrace.

Mr. Lawson communicated the following notes of new localities for rare plants in the county :—

Asperula odorata. Linlathen.

Aquilegia vulgaris. Linlathen, naturalized.

Primula veris. Den of Duntrune, confined to a dry bank, *P. vulgaris* being abundant in the moist and low grounds, but not mingling with *P. veris* on the dry ground referred to.

Chenopodium Bonus-Henricus. Road-side at south entrance to Den of Duntrune, beside the *Fragaria elatior* station. West side of Magdalen Yard Green.

Origanum vulgare. Very abundant in Den of Balruddery.

Luzula multiflora, Lej. Linlathen.

Polemonium cæruleum. Linlathen, naturalized.

Petasites vulgaris. With white flowers, near Mains Castle.

Sedum Telephium. Inner side of a hedge by the road-side between Stobswell tavern and the Den of Mains. On a bank by the way side, a short way above Adam's public-house, at Strathmartine. Only naturalized in both stations.

Parmelia physodes. In fruit on trees of a clump at the road-side between Adam's public-house at Strathmartine, and the Sidlaw hills.

A paper was read by Mr. Ogilvie, being a second visit to the Sidlaw hills: he exhibited specimens of the plants collected, for some of which new stations were mentioned, viz.:—

Chenopodium Bonus-Henricus. Road-side between Camperdown and Dronley.

Carum Carui. Road-side near Balbenckly farm-house.

Mr. Ogilvie likewise mentioned that he found the *Alchemilla alpina* on the Sidlaw hills, where it was first found by Mr. Lawson, in 1844.

4th July, 1848.—The President in the chair.

A paper by Mr. Gorrie was read, entitled “The Spring of 1848 ; its Climate and Vegetation ;” in which he traced clearly the progress of vegetation during the bygone spring, and the effects of the season upon it. These observations were prefaced by some general remarks on the subject of great interest.

Mr. Ogilvie exhibited a specimen of *Trientalis europæa*, showing a monstrosity in the flower (See *Phytol.* iii. 223). He likewise mentioned having gathered *Pyrola minor* in Baldovan woods, with white flowers.

Mr. Wyllie exhibited a specimen of *Pyrola media* from the Sidlaw hills, being a new station for the plant. He likewise mentioned the occurrence of *Dianthus deltoides* at the Mains, two miles from Dundee.

Mr. Lawson presented a specimen of *Statice Armeria*, with the flowers elevated on footstalks. He gathered the specimen on the rocky coast between Arbroath and Auchmithie.

John Ord, Esq., of Melmerby, near Ripon, and Mr. George Milne, Jun., Dundee, were elected Fellows ; and Messrs. George Palmer, A. Low, and James Wyllie, Dundee, were elected Associates.—*G. L.*

Notice of ‘The Plant ; a Biography. In a Series of Popular Lectures. By M. J. SCHLEIDEN, M.D., Professor of Botany to the University of Jena.’ Translated by ARTHUR HENFREY, F.L.S., &c., Lecturer on Botany at St. George’s, Hospital, London, Author of ‘Outlines of Structural and Physiological Botany.’ With five coloured plates and thirteen wood-engravings. London : H. Baillière, 219, Regent Street. 1848.

It is really refreshing to find that there still exist in Germany naturalists of no mean reputation, whose labours demand and really deserve a notice of a very different description from that elicited by the ravings which, dignified by the high-sounding title of *Physio-philosophy*, were recently imported from that modern cloud-land, and published here under the auspices of one of our learned societies ; and it is also gratifying to see that we possess an English botanist, not only capable of understanding, but able, as well, to render into intelligible and not inelegant vernacular, a popular production of one of the most distinguished phytologists of the present day. We do not say that Schleiden’s new book is by any means what we expected to find it ;

nor can we say that we think it what it ought to have been; still it is a step, and an important one, in the right direction—that of popularizing one of the most pleasing branches of Natural History. We are especially thankful to Schleiden for the following protest against certain insane nothings which have already been exposed in these pages. He says:—

“ True to my own convictions, I have kept free from all the pratings of the physio-philosophers of the Schelling school, and I am firmly persuaded that science has no need of these fopperies to make it appear interesting to the uninitiated. Humboldt in his ‘Views of Nature,’ Dove in his masterly ‘Lectures on the Climate of Berlin,’ have proved that science may really appear lovely and captivating, without adorning herself with the false tinsel of those conscious or unconscious falsehoods, which would substitute poetry for thought, imagination for knowledge, or dreams for truths. I have endeavoured to adorn these essays with as many graces as my imperfect æsthetic culture enabled me to impart, but that it has not been my intention to enter the lists with those masters of language, need scarcely be mentioned. I believe, however, that if men of science would more often seek to introduce truth into society, in fair attire, the path of that intolerable, mystical and pretentious, empty chattering, would be more effectually arrested than by any rational argumentation against it.”—p. 2.

From a casual glance at its contents, Schleiden’s book would at first sight appear, like the Irishman’s letter, to treat “*de omnibus rebus et quibusdam aliis*,” many of the said things seeming to bear about as much relation to Botany as to the French Revolution. For example, we have one lecture upon ‘The Eye and the Microscope,’ another ‘About the Weather,’ and two in reply to the question ‘What does Man live upon?’ This diversity of subjects, however, upon further acquaintance with his pages, is seen to be only a part of the author’s plan, and, in connexion with the more purely botanical lectures, it is skilfully rendered subservient to the aim declared in the following extract:—

“ My chief aim was, in fact, the satisfaction of what may be called a class-vanity. A large proportion of the uninitiated, even among the educated classes, are still in the habit of regarding the botanist as a dealer in barbarous Latin names, a man who plucks flowers, names them, dries and wraps them up in paper, and whose whole wisdom is expended in the determination and classification of this ingeniously collected hay. This portrait of the botanist was, alas! once true, but it pains me to observe, that now, when it bears resemblance to so

few, it is still held fast to by very many persons ; and I have sought, therefore, in the present discourses, to bring within the sphere of general comprehension the more important problems of the real science of Botany, to point out how closely it is connected with almost all the most abstruse branches of philosophy and natural science, and to show how almost every fact, or larger group of facts, tends, as well in Botany as in every other branch of human activity, to suggest the most earnest and weighty questions, and to carry mankind forward beyond the possessions of sense, to the anticipations of the spirit.”—p. 1.

To this end, instead of treating plants as so many independent beings, isolated from all other natural objects, the author traces their intimate connexion with the rest of organic and inorganic creation—with the soil to which they are attached, the air which surrounds them, the water in which, as a convenient vehicle for absorption, the various matters necessary for their nutriment are contained, and even with the animal world, which derives from the vegetable kingdom so large a portion of its sustenance. He says:—

“ The vegetable world, if it be but looked upon as something more than the materials for a herbarium, offers so many points of contact to the human race, that those who devote themselves to its study, instead of having to complain of want of material, become oppressed with the multitude of interesting questions and problems which crowd upon them. The different subjects of consideration may be conveniently arranged under four aspects ; 1stly, the condition of the plant itself as a question of scientific inquiry ; 2ndly, the relations of the individual plants to each other ; 3rdly, the relations of plants as organisms to the organism of the whole earth ; and 4thly, the relation of the human race to the vegetable world. But since each of these four relations is fulfilled by the plant at one and the same time, it is infinitely difficult, if not impossible, to keep each aspect clear and unmixed ; and when we enter upon one of these relations with the desire to subject it to closer investigation, we are always involuntarily constrained, sooner or later, to direct our attention to the rest, and to draw them within the circle of our researches. Though we establish upon these questions, according to their order, the following branches of study : *Theoretical*, or Pure Botany ; *Systematic* Botany ; *Geographical* and *Applied* Botany ; yet not one of these can be treated from its own principal point of view alone, if it would lay claim to a scientific or profound character ; still more difficult is it, however, to keep strictly within the boundaries of these four divisions when the object in view

is not dry scientific teaching, but a lively demonstration of the more important points. In the following essays, therefore, the division into these four branches can only be adopted to a limited extent, and a freer treatment becomes necessary from the abundance of material which continually allures us to turn aside from our path, to gather here and there a bright or fragrant flower ; or the companionship in which we wander through the land of science, induces us oftentimes to leave the straight but dusty and fatiguing high road, now to pursue our course through lanes which wind among pleasant meadows, now to explore a shady forest path.”—p. 3.

Plants being built up of exceedingly minute cells or vesicles, of various forms and as varied contents, it is evident that a thorough examination of their internal structure should precede all other considerations. It is to a careful investigation of the minute organized constituents of plants that we owe the immense advances in Botany as a science, which have so completely distanced the labours of its early cultivators, whose performances were the more valuable in proportion as they employed in their researches that instrument to the improvements in the construction and mode of using which modern naturalists owe much of their pre-eminence. Thus we see that a preliminary chapter on the microscope, in connexion with the eye as the organ of vision, is perfectly relevant to the more immediate subject of the succeeding lectures. Of sight, the author well observes, that “it is the sense which originally introduces and unceasingly expands our whole knowledge of the corporeal world, and we may, therefore, with great propriety, call it the Sense of the Naturalist ;” for, in the words of Seneca, appropriately used as the motto to this lecture,

“*Oculus ad vitam nihil facit, ad vitam beatam nihil magis.*”

The second lecture relates to “The Internal Structure of Plants.” And here, contrasting the comparatively trifling results of the most boasted labours of man, effected with so much toil and such extensive preparation of material and machinery — contrasting these with the stupendous and infinitely varied works of Nature, produced by the simplest causes and resulting from numerous combinations of the simplest means ; the author remarks that “we need not ascend to the stars to recognize how little Nature requires to the unfolding of wonders :” and continues,—

“Let us tarry a moment with the vegetable world. From the slender palm, waving its elegant crown in the refreshing breezes, high

aloft over the hot vapours of the Brazilian forests, to the delicate moss, barely an inch in length, which clothes our damp grottoes with its phosphorescent verdure; from the splendid flower of *Victoria regina*, with its rosy leaves cradled in the silent floods of the lakes of Guiana, to the inconspicuous yellow blossom of the duck-weed on our own ponds; — what a wonderful play of fashioning, what wealth of forms!

“From the six-thousand-years-old Baobab, on the shores of Senegal, the seeds of which perhaps vegetated before the foot of man trod the earth, to the fungus, to which the fertilizing warmth of a summer night gave an existence which the morning closed — what differences of duration! From the firm wood of the New Holland oak, from which the wild aboriginal carves his war-club, to the green slime upon our tombs, what multiformity, what gradations of texture, composition and consistence! Can one really believe it possible to find order in this embarrassing wealth, regularity in this seemingly disorderly dance of forms, a single type in these thousandfold varieties of habit? Till within a few years of the present time, indeed, the possibility was not yet conceived, for as I have before remarked, we may never expect to be enabled to spy into the mysteries of Nature until we are guided by our researches to very simple relations. Thus could we never attain to scientific results respecting the plant till we had found the simple element, the regular basis of all the various forms, and investigated and defined its vital peculiarities. By the help of the improved microscopes we have at last advanced far enough to find the point of departure of the general theory of the plant.

“The basis of the structure of all the so very dissimilar vegetables is a little closed vesicle, composed of a membrane usually transparent and colourless as water; this botanists call the ‘cell,’ or ‘vegetable cell.’ A review of the life of the cell must necessarily precede the endeavour to comprehend the whole plant, nay, it is as yet, properly speaking, almost the only really scientific part of Botany.”—p. 42.

The author then, with the aid of coloured figures, enters upon a more minute history of the cell, as the foundation of all the tissues which go to make up the infinitely varied forms of plants; describing its appearance, contents, and mode of reproduction — each cell having the property of forming within itself a number of other cells, each of which is also endowed with the same property—and showing in what manner the vascular and woody tissues all proceed from the simple cells which are the primitive form of vegetable structure.

"We may regard the cell as a little independent organism, living for itself alone. It imbibes fluid nutriment from the surrounding parts, out of which, by chemical processes which are constantly in action in the interior of the cell, it forms new substances which are partly applied to the nutrition and growth of its walls, partly laid up in store for future requirements; partly again expelled as useless and to make room for the entrance of new matters. In this constant play of absorption and excretion, of chemical formation, transformation and decomposition of substances, especially consists the life of the cell, and, since the plant is nothing but a sum of many cells united into a definite shape, also the life of the whole plant.

"These cells in the course of their development become crowded closely together, and thus form the whole mass of the plant, the cellular tissue, which, however, may be divided into three principal classes of tissue, according to the different forms of the cells, and more especially according to their importance to the life of the plant." —p. 45.

One of the most curious things connected with the cell-structure of plants is the power possessed by those minute bodies, which all owe their origin to the same constituents, of forming the most varied substances in their interior, which substances may be primarily divided into such as are soluble in water and such as are insoluble. To the former class belong albumen, gum, sugar, and the acids; and to the latter the fatty and aromatic oils. The most remarkable of these substances is starch, whether regarded as playing a most important part in the nutrition of the animal kingdom, for which purpose it is stored up in great quantity in various parts of the plant, but more especially in the roots, tubers, seeds, fruits, and more rarely the pith; or as affording the only known mark of distinction between the chemical composition of the elementary tissues of plants and those of animals, since it occurs in the former in addition to the oxygen, hydrogen, carbon and nitrogen common to the two kingdoms.

In the lecture upon "The Propagation of Plants," the author, after referring to the almost infinite forms of animal life, all which, directly or indirectly, derive their sustenance from the vegetable world, proceeds to develop his own views of the means provided for the reproduction and multiplication of organisms upon which depend the very existence of so large a proportion of the inhabitants of our globe: and says—

"That this may not be effected by a simple, well defined form of multiplication, as in the higher animals, is in itself evident, and be-

comes still more so when we observe that mankind and most animals draw upon those parts of the plants for their nourishment, which we usually consider to be the peculiar organs of reproduction: I mean the seeds.”—p. 63.

After reverting to the power possessed by the individual cell of forming new cells in its interior, and thus of propagating itself, the author proceeds—

“Now the newly-formed cells have also this peculiarity, they grow and arrange themselves conformably to the cell in which they originate. Thus is the power given to all plants to develop new plants out of any of their cells, when these come to be placed in favourable circumstances, and by this power is explained the facility with which almost all plants may be multiplied.”—p. 65.

To this power is referrible the production of buds upon various parts of certain leaves, whether separated from, or while remaining attached to the stem; upon stems, in the axillæ of the leaves; and other irregular modes of propagation: and equally referrible to it is the regular mode by the production of the reproductive bodies known as spores and seeds; which may be explained by the fact that—

“Every plant produces within itself a definite number of single, free, unconnected cells, which at a certain epoch spontaneously separate from the plant. It is the peculiar character of those plants which have true leaves, to produce these cells only in the interior of the leaves, which at the same time often assume a very different form, as for instance, in the stamens. Another condition is also worthy of remark. Only in the very lowest plants, flowering wholly under water, is the propagative cell naked; in all others it is invested with a peculiar substance, which has not yet been chemically examined, but is mostly yellow and very indestructible. * * * Now these cells are especially destined to the reproductive function, since from every one of them is a new plant developed. An essential distinction, however, occurs in this development; one, indeed, recognized at an early period, and so exclusively regarded, that the higher agreement was altogether overlooked.”—p. 69.

In one mode of the development of these reproductive cells, that which obtains in all the plants comprehended by Linnæus in his class *Cryptogamia*, they are at once scattered upon the earth, or in the water, wherever the new plants are to grow. And then,

“Either the whole cell is gradually transformed into a new plant, new cells originating in it and taking its place, in these others, and so on, which is the case in the Algæ, Fungi, Lichens, and part of the

Liver-mosses; or the cell expands into a longish utricle or tube, but only one extremity of this tube becomes filled with cells, which gradually grow up into a new plant, the remaining portion of the cell, meanwhile, decaying; this is the case in the remaining Liver-mosses, the Mosses, Ferns, Lycopodia and Equiseta. * * In all these Cryptogamia the reproductive cells are called *spores*, or germinal grains.”—p. 70.

In the Phanerogamia, or flowering plants, the operations of reproduction and germination are much more complicated. The reproductive cells are called *pollen*, and are formed in those peculiar modifications of leaves called the *stamens*. Here, instead of at once falling to and germinating upon the ground or in the water, the cells require the intervention of the reproductive apparatus known as the ovary, style and stigma. In the hollow part of this apparatus, named the ovary, are little protuberances formed of cellular tissue,—the seed-buds or ovules, and in each of these is a large cell, or the embryo-sac.

“At the flowering period the pollen falls upon the stigma, and then commences the development of the reproductive cells. Each one extends itself into a long filament, exactly as in the Cryptogamia, and in this form penetrates to the cavity of the germen, to enter one of the seed-buds, and finally, into the embryo-sac. The extremity which has passed in now becomes filled with cells, and these develop forthwith into a perfect, though as yet simple and minute plantule, the so-called embryo or germ. Simultaneously with the development of the pollen-cell into the embryo, the seed-bud is perfected into a seed, the germen into the fruit. A pause in the growth now suddenly occurs, and the seed may often be preserved for a long time in this apparently dead condition. But when favourable external circumstances come into play, the life begins anew with the further unfolding of the plant, which is commonly called germination.”—p. 71.

Such is, in fact, Schleiden’s theory of the development of the embryo in the ovule; and we were long ago struck, long, indeed, before we read anything which has been written upon the subject, with the analogy between pollen-grains and spores—between anther-cells and the thecæ of ferns: and it is but a step further in the same direction to conceive the same analogy to obtain also between the first act of germination of a spore upon the ground or in the water, and the development of an embryo from a pollen-grain in the embryo-sac of an ovule. This latter process, it is true, is not germination: but it is a

step preliminary to it, and strictly analogous to the emission of the tubular elongation from the lower portion of a spore when a suitable medium has been attained as a preliminary to the evolution of the first leaf-like expansions of the young cryptogam.

The lecture upon "The Morphology of Plants" treats upon the doctrine which traces all the variously formed organs of plants to modifications under certain circumstances of what, under certain other circumstances, would have been a leaf.

The fifth lecture is "About the Weather," and little else; and the following extract contains the cream of the matter, showing the connexion of vegetation with the varying conditions of the atmosphere.

"We have seen that heat and its varied distribution according to latitude and longitude, height and depth, is the peculiar fundamental phenomenon, around which the others group themselves, upon which they are dependent. Most intimately is the degree of moisture of the air connected with it, and warmth and moisture are the primary conditions of all vegetable life. On those two principal forces, therefore, hangs almost entirely the distribution of plants over the earth. The animal world follows the plants, since the vegetable feeders are directly, the Carnivora indirectly, connected with determinate formations of plants. So that heat and cold are not the only consequences of the position of the sun in regard to the earth, but also the whole life existent thereon: the action of its mightiest forces in the raging hurricane, which hurls four-and-twenty-pounders through the air, to the invisible labour of the most minute Infusorium; the roar of the Chilian pine, and the low whisper of the northern birch; from the roar of the lion, the slayer of the gazelle, even to the pipe of the mouse-hunting screech owl, whose discordant note the awakened sleeper's superstition interprets as '*komm mit, komm mit*' (come with me). The fox and tiger point to the barn-door fowl and the giraffe, these to barley-fields and acacia-groves, these again to the corresponding zones of Europe and to the glowing savannahs of Africa. On the sun depend not only vitality and motion, but also the first arrangement, and its shining rays are the pencils with which it paints the light and shade, the glowing yellow of the arid sand, the cool green of the moist meadow, with which it lays down the geography of plants and animals upon the surface of the earth, and even sketches the design of an ethnographic chart of the human race."—p. 126.

The sixth and seventh lectures contain replies to the question, "What does man live upon?" To this question most people would give the negative reply, Man cannot live upon air; but then, says the

naturalist, Man can live very well upon air; nay, in point of fact, he does live on air alone, and nothing else whatever: and it is his business, aided by chemistry, to make good the assertion.

The Guacho of the Pampas consumes daily ten or twelve pounds of meat; the word *bread* does not exist in his vocabulary: the Irishman regales himself on "potatoes and point:" the hunter of the prairies roasts the hump of the buffalo he has brought down with his bullet: the Chinese enjoys his fattened rats and delicate puppies: the Greenlander in his snow-hut consumes with the greatest gustô his whale fat: the negro-slave sucks his sugar-cane and fattens upon the farinaceous banana: the oriental merchant, when setting out on a journey, fills his bag with sweet dates: and the Siamese crams himself with rice: "wheresoever over the whole inhabited earth we approach and demand hospitality, in almost every little spot a different kind of food is set before us, and the 'daily bread' offered in another form;" and these so varied kinds of nourishment contain a few similar matters, which peculiarly serve for the food of man, whence the unity of the end produced from the multiplicity of materials.

Four elementary substances, out of the fifty-three or thereabouts, which have been discovered in the numerous substances by which we are surrounded, alone take an essential share in the composition of all that is termed organic or living existence: these four are oxygen, hydrogen, carbon and nitrogen; and these form all the substances of which plants and animals are composed.

"The four elements under consideration form numerous compounds by their union one with another; but only two classes of these have a very deep importance in relation to the organic world. One of the classes comprehends the substances which are compounded of all four elements. This includes albumen, fibrine, caseine and gelatine. All animal bodies are formed out of these substances, which, when separated from them as dead matter, all pass rapidly by decomposition into water, ammonia and carbonic acid, which are diffused through the air. The second class, on the other hand, includes the substances devoid of nitrogen, namely, gum, sugar, starch, the liquors prepared from them, such as spirit, wine, beer, and, lastly, all the various kinds of fat. All these merely pass through the animal body, since the carbon and hydrogen are burnt off by means of the oxygen received in respiration, and are expired as carbonic acid and water. By this slow but uninterrupted process of combustion is maintained the heat indispensable to life. But by the recent brilliant discoveries in chemistry and physiology we have become aware that the animal body is

incapable of composing from their elements, or of forming from any other substance excepting caseine, the substances albumen, fibrine, &c., absolutely necessary to its development and support; that the animal must indeed receive substances ready prepared, in order to apply them to its nutrition, or to convert them into gelatine for the formation of its bony structures. Albumen, fibrine and caseine are therefore rightly named by Liebig the exclusive *materials for nutrition*; they cannot be replaced by any other substance; when they are entirely withheld the body must necessarily die of starvation. But the components devoid of nitrogen must also be present, as it were for fuel on the hearth of organic life; and these substances, which are in common life also called food, Liebig appropriately denominates *materials for respiration*.”—p. 136.

After some further interesting illustrations of the different classes of vegetables which produce these materials in the greatest abundance, the author introduces some brief historical sketches of the introduction of coffee, chocolate and tea as beverages, for the purpose of calling attention to an unsolved physiological problem. “Everywhere have these beverages become necessities of life; everywhere is the origin of their use enveloped in mystical obscurity; everywhere has man, not led by rational considerations, by knowledge of their properties and action, or by comparison of them with already known nutritive substances, but, as it were, instinctively, added them to the number of his daily wants.” Chemistry has endeavoured to discover the cause of this phenomenon; and the result has shown that in all these substances exists an element, distinguished from all other vegetable productions by the very large proportion of nitrogen contained in it; but experiments have hitherto failed to detect any special action upon the animal economy resulting from the administration of large quantities of pure theine, the substance alluded to.

Returning from this digression, the author goes on to show in what way the recent revelations of chemistry as to the constituents of substances used as food, account for the varying habits of those nations into whose ordinary diet enter a greater or less amount of either animal or vegetable products; and continues:—

“Our investigations have thus led us to recognize that the whole animal world lives upon the vegetable kingdom, either immediately by actual vegetable food, or mediately by the vegetable feeders collecting the peculiar nutritive matters for the Carnivora, from the plants, depositing the material for respiration, which contains no nitrogen, in the form of fat. But we do not arrive at the conclusion of our inqui-

ries here; for the question comes: 'What do plants live upon?'—p. 146.

The reply to this question involves the consideration of those important agricultural subjects, the properties and mode of action of manures. In the preliminary observations upon the chemical constituents of the vegetable fabric, oxygen, hydrogen and carbon, which form cellulose, the absence of nitrogen from these constituents is mentioned, and the necessity for a supply of that gas adverted to, in order that the plant may be enabled to perform certain chemical processes necessary for the elaboration of the nutrient matters taken up by the roots.

"The inquiry into the nutrition of the plant includes, therefore, the inquiry into the sources of carbon and nitrogen; oxygen and hydrogen being sufficiently provided by water and atmospheric air. The notion which has hitherto been generally received is, that the plant extracts its carbon and nitrogen from manure, or from the humus of the soil.

"All animal and vegetable bodies, so soon as they are dead, pass over into a state of decomposition, by means of which they are dissipated, sooner or later, in the atmosphere, being changed into carbonic acid, ammonia and water. So long as this process is incomplete, a residue, itself much altered, of a brownish or black colour, remains, which at the commencement of the decomposition is called manure, and towards its close humus, or vegetable mould. It is a complex mixture of very manifold products of decomposition. Now it was argued thus: carbon and nitrogen are abundant in humus; in a soil that is rich in humus or is well manured, plants thrive better than in one which is poor in humus; consequently, humus is the source of the carbon and nitrogen of plants. But this reasoning is altogether inconclusive."—p. 148.

It is manifestly inconclusive, because it does not account for the source of the immense quantities of nitrogen and carbon derived from the soil in cases wherein no, or comparatively very little, organic matter is returned to localities supplying organisms in which carbon and nitrogen abound. About 4,000 lbs. per acre of dry wood, containing about 1,600 lbs. of carbon, are annually derived from forests which receive no other manure or humus than what they obtain from their own leaves or broken wood: and by carefully conducted experiments instituted upon land nearly five acres in extent of area, for twenty-one years, it has been shown that the average annual harvest gained from the soil gave a result of twice as much nitrogen, three times as much

carbon and hydrogen, and four times as much oxygen, as had been given to it in manure during the year, even supposing that the whole amount of the nutrient qualities of the manure had entered the plants, which is never the case.

“And thus, as the final result of our inquiry, we arrive at the following grand view of the interchange of matter between the three kingdoms of Nature. Decomposition and the process of respiration set free all vegetable and animal substances (diminishing the amount of oxygen in the air) in the form of carbonic acid, ammonia and water, which diffuse themselves in the atmosphere. The plant takes possession of these substances, and forms from them, accompanied by an incessant increase of the oxygen of the atmosphere, compounds rich in carbon and hydrogen, but devoid of nitrogen, such as starch, gum, sugar, and the various fatty matters, and others rich in nitrogen, namely, albumen, fibrine and caseine. These compounds are for the service of the animal, which builds up its corporeal frame from the latter, and burns the former in the respiratory process, for the maintenance of the necessary heat. This theory stands now firm and unshakable upon the facts which have been brought forward, and the naturalist is perfectly correct when he says, that man, through the mediation of plants in the first instance, lives upon air. Or we may express it in this way: the plant collects the matters from the atmosphere, and compounds from them the food of man. But life itself is but a process of combustion, of which decomposition is only the final conclusion. Through this combustion all the constituents return back into the air, and only a small quantity of ashes remains to the earth from which they came. But from these slow invisible flames rises a new Phœnix, the immortal soul, into regions where our science has no longer any value.”—p. 152.

But then comes the question, “If the plant draws carbonic acid, ammonia and water from the air — if this is its only source of food — what is the use of manure?” One answer to this question is derived from physics, explaining the action of humus in general, the other from chemistry, showing the necessity for manure, and the advantages derived from its use.

Carbonic acid, ammonia and water being the food of plants, the question arises, how and by what organs do plants absorb these matters. Water to the amount of 99 per cent. at least is taken up by the roots; but plants have been proved to consume a far greater quantity of water than falls in the form of rain, even supposing them to absorb all the rain which falls, which is by no means the case.

“The watery vapour of the atmosphere must, therefore, be brought to the plant in some other way, and this happens through the property of absorbing the moisture of the atmosphere, which is possessed by most of the constituents of the soil. No substance possesses this property in so high a degree as the humus, originating out of the gradual decomposition of organic matters. The humus is also remarkably distinguished for its special power of extracting, and as it were collecting the carbonic acid and ammoniacal gas of the air; no solid substance of the soil equals it in this particular, and water itself only ranks second after it. Humus consequently contains, under all circumstances, water impregnated with carbonic acid and ammonia, and in proportion as this is withdrawn from it by the roots of the plants, the loss is replaced out of the atmosphere. This is certainly the principal road by which water is conveyed into the plant, most probably the most essential canal through which it is fed with ammonia, and there is no doubt that at least a great portion of the carbonic acid is thus brought to it.”—p. 161.

The progress of vegetation, from the earliest appearance of plants in their simplest possible form, up to the most complicated structure, is well portrayed in the following extract, which also exhibits the mode in which humus or vegetable mould is gradually accumulated upon the previously bare surface of rocks, until a rich soil is formed, capable of supporting a luxuriant vegetation.

“Look at a recently exposed surface of a block of granite, for instance, on the summit of the Brocken; there we find that vegetation is soon developed, in the form of a little delicate plant, which requires the microscope for its recognition; and this is nourished by the small quantity of atmospheric water impregnated with carbonic acid and ammonia. This, the so-called violet-stone, a scarlet, pulverulent coating over the bare stone, which, on account of the peculiar smell of violets which it emits when rubbed, has become a curiosity, industriously sought by the thoughtful wanderer on the Brocken. By the gradual decay and decomposition of this little plant, a very thin layer of humus is by degrees produced, which now suffices to procure from the atmosphere food sufficient for a couple of great blackish brown lichens. These lichens, which densely clothe the heaps of earth round the shafts of the mines of Fahlun and Dannemora, in Sweden, and through their gloomy colour, which they impress on all around, make those pits and shafts look like the gloomy abysses of death, have been appropriately called by botanists the Stygian and Fahlun lichens. But they are no messengers of

death here; their decay prepares the soil for the elegant little alpine moss, the destruction of which is speedily followed by the appearance of greener and more luxuriant mosses, until sufficient soil has been formed for the whortle-berry, the juniper, and finally for the pine. Thus, from an insignificant beginning, an ever-increasing coating of humus grows up over the naked rock, and a vegetation, continually stronger and more luxuriant, takes up its position, not to be nourished on that humus, which increases instead of decreasing with every decaying generation, but by its means to be supplied with nourishment from the atmosphere.”—p. 162.

But that this fertilizing humus is of itself incapable of furnishing the requisite pabulum to all plants indifferently, is evident from the scanty vegetation of localities where it abounds; and that it is not of itself the only requisite for a luxuriant vegetation is also evident from the number of plants which flourish where the soil contains but a small proportion of humus.

“When we look to the wild vegetation of our own latitudes, we find two principal classes of soil: one a peat or bog soil, which consists almost wholly of humus, therefore of decomposed organic matter, the other of calcareous, sandy, or argillaceous soils, in which the inorganic constituents prevail in so great a degree, that the humus, in the blackest soils, does not amount to more than 10 per cent. at most, and even in the most fertile, and those clothed with the richest vegetation, often scarcely forms $\frac{1}{2}$ per cent. And that peat or bog soil, so rich in humus, can only afford sustenance to 300 of the 5,000 flowering plants growing in central Europe; and there are not perhaps fifty plants, therefore not one per cent., of which the actual conditions of healthy growth are furnished by the bog soil, which would not also thrive exceedingly well in other places, if the necessary moisture were afforded them. * * On the other hand, the other class nourishes the whole vegetation of our latitudes, in a multiplicity which is varied enough to our eyes, unused to the tropical world, and we generally find the richest abundance on the soils which are poorest in humus, but richest in inorganic constituents, on basaltic, granitic, porphyritic and calcareous soils.”—p. 167.

As a general summary we may quote one more paragraph from this lecture, of which we fear our readers are by this time heartily tired.

“We have, then, three opposite conditions here: the common soil, bog soil, and that of gardens. The first nourishes an abundance of different plants, which, however, remain the same, in fixed consequence, through thousands of years. The bog soil is extraordinarily

poor in vegetables; it only brings forth the most formless and useless plants. Lastly, the garden soil not only nourishes in luxuriance every plant that is committed to it, but even continually multiplies the abundance of vegetable forms to infinity, to which, however, opposing climate sets a limit so soon as the favouring influence of culture is withdrawn. Then two other conditions present themselves, in contrast, to our consideration. We have on the one side the common soil, possessing little or no organic remains, and abundance of plants; on the other, the bog and garden soils, both rich to superabundance in the black constituent called humus, which has been formed by the decomposition of animal and vegetable organisms. And nevertheless, we find such a difference of influence on vegetation between the bog and garden land. But this is readily explained by the manner in which they have been formed. The peaty soil originates from the decomposition of organic substances in the presence of much water. The consequence of this is, that the water takes up and carries away all the soluble salts which were contained in those organisms, so soon as ever they are set free. In the garden soil, on the contrary, all those soluble salts remain behind, come immediately into the possession of the plants, and, under a rich culture of the soil, accumulated in them to an extraordinary degree, while the organic constituents, through uninterrupted decomposition, are continually diminished in quantity, and so can never accumulate in the way they do in the peat or bog soils, where the presence of water, after a certain time, restrains or very much retards the further progress of decomposition. A more striking proof of the correctness of the new views of the nutrition of plants could not easily be given, than these statements; views which were almost simultaneously established and made known by one of the most distinguished chemists, Liebig, and one of the most eminent and practical agriculturists, Boussingault.”—p. 170.

In the eighth lecture — “On the Milk-sap of Plants,” — the author enters into some interesting details relating to three great families of plants abounding in milk-sap. These families are the Euphorbiaceæ, the Apocynaceæ, and the Urticaceæ; the latter order, however, has been properly broken up, the milky plants formerly included in it being now grouped together in a new order, the Moraceæ, and to these most of the author’s observations more strictly apply. The milk-sap of all the plants included in these orders contains more or less of caoutchouc, which occurs in the form of little globules. These are prevented from coalescing by an albuminous substance, in the same way as are the butter-globules in milk. Exactly like the cream

(butter) in milk, the caoutchouc-globules rise to the surface of the milk-sap of plants when left to stand, here form a cream and coalesce, and cannot, any more than butter, be separated again into their distinct globules." The principal part of the caoutchouc used in this country is obtained from *Siphonia elastica*, a member of the Euphorbiaceous group, but that of the best quality seems to be furnished by *Cynanchum ovalifolium*, an Apocynaceous species native to Pulo Penang. But while all three orders contain certain members whose sap is wholesome and even nutritious, as that of the cow-tree, they all abound in the most deadly poisons: witness among others the Wourari poison, the mode of preparing which by the Indians, and their use of it for poisoning their arrows, has been well described by Schomburgk, and quoted in a former number of the 'Phytologist' (i. 47). As a pendant to that account we may give the following graphic sketch of a Javanese forest:—

"Two very different trees grow in those little visited primeval forests of Java. All the paths leading to them are closed and watched, like those leading to the gates of the Holy of Holies. With fire and axe must the road be made through the impenetrably interwoven mass of Lianes, the Paullinias, with their clusters of great scarlet blossoms several feet long, the Cissi, or wild vines, on the wide-spread creeping roots of which thrives the giant flower of the *Rafflesia Arnoldi*. Palms, with spines and thorns, rush-like plants, with cutting leaves, wounding like knives, warn the intruder back by their attacks, and in every part of the thicket threaten the fearful nettles formerly mentioned. Great black ants, whose painful bite tortures the wanderer, countless swarms of tormenting insects pursue him. Are these obstacles overcome?—yet follow the dense bundles of bamboo stems, as thick as a man's arm, and often fifty feet high, the firm glassy bark of which repels even the axe. At last the way is opened, and the majestic aisles of the true primeval forest now display themselves. Gigantic trunks of the bread-fruit, of the iron-like teak (*Tectonia grandis*), of Leguminosæ, with their beautiful blossoms, of *Barringtonias*, figs and bays, form the columns which support the massive green vault. From branch to branch leap lively troops of apes, provoking the wanderer by throwing fruit upon him. From a moss-clad rock the melancholy orang-outang raises himself gravely on his staff, and wanders into deeper thickets. All is full of animal life; a strong contrast to the desert and silent character of many of the primeval forests of America. Here a twining, climbing shrub, with a trunk as thick as one's arm, coils round the columns of the dome, overpassing the

loftiest trees, often quite simple and unbranched for a length of a hundred feet from the root, but curved and winding in the most varied forms. The large, shining, green leaves alternate with the long and stout tendrils with which it takes firm hold, and greenish white heads of pleasant-smelling flowers hang pendant from it. This plant, belonging to the Apocynaceæ, is the *Tjettek* of the natives (*Strychnos Tieuté*, Lesch.), from the roots of which the dreadful *Upas Radia*, or sovereign poison, is concocted. A slight wound from a weapon poisoned with this,—a little arrow made of hard wood, and shot from the blow-tube, as by the South Americans,—makes the tiger tremble, stand motionless a minute, then fall as though seized with vertigo, and die in brief but violent convulsions. The shrub itself is harmless, and he whose skin may have been touched with its juice need fear no consequences. As we go forward, we meet with a beautiful slender stem, which overtops the neighbouring plants. Perfectly cylindrical, it rises sixty or eighty feet smooth and without a branch, and bears an elegant hemispherical crown, which proudly looks down on the more humble growths around, and the many climbers struggling up its stem. Woe to him who heedlessly should touch the milk-sap that flows abundantly from its easily wounded bark. Large blisters, painful ulcers, like those produced by our poisonous sumach, only more dangerous, are the inevitable consequences. This is the *Antiar* of the Javanese, the *Pohon Upas* (signifying poison-tree) of the Malays, the *Ipo* of Celebes and the Philippines (*Antiaris toxicaria*, Lesch.). From it comes the common Upas (*anglicè* poison), which is especially employed for poisoning arrows, a custom which appears to have extended formerly throughout all the Sunda islands, but which is now, since the introduction of fire-arms, only to be met with among the savages of the rugged and inaccessible mountains of the interior of the island.”—p. 203.

Turning from these envenomed denizens of the tropical forests, we find, in the ninth lecture, an interesting and agreeable “Sketch of the Cactus Tribe,” an order of plants possessing properties the very opposite to those we have just been considering, though in form many of its members closely resemble some of the singular leafless Euphorbias. None of the Cactaceæ are poisonous; the juices of all are more or less agreeable; while the beauty of their flowers, combined with the extreme oddity and eccentricity of their varied forms, renders them objects of admiration and curiosity with all lovers of plants. Our author has devoted much attention to this *bizarre* tribe; and his elaborate memoir upon their anatomy is referred to with approbation by Lindley, in the

‘Vegetable Kingdom.’ As Schleiden well observes, “Everything about these plants is wonderful;” even their internal structure differs widely from that of all other members of the exogenous class, and in the absence of leaves (which organs are replaced by hairs and spines), in the peculiar structure of their epidermis, and in the extraordinary quantity of oxalic acid secreted (forming insoluble crystals of oxalate of lime with the proportionate quantity of that earth taken up into the system), the Cactaceæ offer some of the most curious phenomena to be found in the whole vegetable race.

“With the exception of the genus *Pereskia*, no plant of the order possesses leaves. Those parts of the *Cactus alatus*, and the Indian fig, which are commonly called leaves, are nothing but flattened expansions of the stem. On the other hand, they are all distinguished by an extraordinary fleshy stem, which, clothed by a grayish-green, leathery cuticle, and beset, in the places where leaves are situated in regular plants, with various tufts of hairs, spines, and points, gives, by its very varied degrees of development, the varied character of the plants. The torch-thistles rise in form of nine-angled or often round columns, to a height of thirty or forty feet, mostly branchless, but sometimes ramifying in the strangest ways, and looking like candelabra; the Indian figs are more humble; their oval, flat branches, arranged upon one another on all sides, produce special forms. The lowest and thickest torch-thistles connect themselves with hedgehog and melon Cactuses, with their projecting ribs, and thus lead us to the almost perfectly globular *Mammillarias*, which are covered very regularly with fleshy warts of various heights. Finally, there are forms in which the growth in the longitudinal direction prevails, which, with long, thin, often whip-like stems, like that of the serpent Cactus, so often cultivated here, hang down from the trees upon which they live as parasites.”—p. 215.

Linnaeus seems to have known only about a dozen species of this family, which were all grouped together in his genus *Cactus*: Schleiden states the number now known at more than four hundred, distributed into ten genera; and Lindley, in his ‘Vegetable Kingdom,’ gives the number of species at eight hundred (with two marks of doubt), and sixteen genera. America is the exclusive station of the order, no other part of the globe appearing to possess a legitimate claim to a single indigenous species, though many have rapidly become naturalized in Europe and other parts of the Old World, since their introduction from America. The driest situations, where they are exposed to the burning rays of the tropical sun, are their

favorite localities, and there, amidst surrounding aridity, they elaborate that pleasantly flavored acid juice so refreshing to the traveller, and which even the wild ass knows instinctively how to avail himself of, by stripping off the spines of the *Melocactus* with his hoof, and then sucking the cooling lymph from the fleshy tissue. The peculiar habit of the plants belonging to this order has given rise to some plausible but unfounded opinions connected with them, which are well exposed in the next extract.

“The Cactaceæ have long been compelled, in science, to serve as the prop of a statement which, altogether false, has yet been frequently put forward by distinguished botanists; I mean, the assumption that many, or even all plants are capable of imbibing their nutriment from the air. Even in the present day has this idea been again revived, with all the long-ago-refuted reasons, by Liebig, whose ‘Organic Chemistry’ has made so imposing an appearance. It is believed, that from the vast amount of watery juice in the Cactus tribe, joined to the fact that most of them, and exactly those richest in sap, vegetate on dry sand, almost wholly devoid of vegetable mould, where they are besides exposed, often three-fourths of the year, to the parching sunbeams of an eternally serene sky; from this combination of circumstances, even, it is thought that we may the more safely conclude, that these plants draw their nourishment from the air, since in our own hot-houses also it has been observed, that the branches of Cactus stems, cut off and left forgotten in a corner without further care, far from dying, have frequently grown on and made shoots three feet long or more. De Candolle first found the right path, when he weighed such Cactus shoots which had grown without soil, and found that the plant, though larger, was always lighter; therefore, instead of abstracting anything from the atmosphere, must rather have given up something to it. All the growth takes place, in such cases, at the expense of the nutritive matter previously accumulated in the juicy tissue, and it generally exhausts the plant to such a degree, that it is no longer worth preserving. It is that succulent tissue which enables the Cactus plants,—one might compare them with the camels,—to provide themselves before-hand with fluid, and thus to brave the rainless season. Their anatomical structure also assists them in this respect, in a peculiar manner. We know, from the experiments of Hales, that plants chiefly evaporate the water they contain through their leaves, and the Cactus tribe have none. Their stem, too, unlike that of all other plants, is clothed with a peculiar leathery membrane, which wholly prevents evaporation. This membrane is composed of

very strange, almost cartilaginous cells, the walls of which are often traversed by elegant little canals. Its thickness varies in different species, and it is thickest, and therefore most impenetrable, in *Melocacti*, which grow in the driest and hottest regions, while it is least remarkable in the species of *Rhipsalis*, which are parasites on the trees of the damp Brazilian forests.”—p. 221.

As a matter of course, the *Cactaceæ* could not be treated on without some allusion to their various economical uses. Almost all bear an edible fruit, which, as Schleiden well observes, may be looked upon as “a nobler form of our native gooseberry and currant, to which also they are the nearest allies in a botanical point of view.” The old dead woody stems of the torch-thistles (*Cereus*) are, as their name implies, used as torches; and they are carried up the Cordilleras on mules to serve as beams, posts, and door-sills to the houses. The *Opuntias* are used in Mexico and other parts both of America and Europe to form hedges: the spines of *Opuntia Tuna* are said to be so large and strong as to kill the buffaloes by the inflammation following wounds inflicted by them; and it was this species, planted in a triple row, which formed the boundary line between the English and French in the Island of St. Christopher. But it is in a mercantile view as the supporters of the cochineal insect (*Coccus Cacti*), that these plants have perhaps attained the highest importance. Humboldt has stated that the importation of cochineal from Oaxaca alone is valued at £500,000; the pound costing about 30s., and containing some 70,000 insects, which will give an idea of the enormous number of insects, and the great extent of this peculiar kind of culture.

The deformed and shapeless forms of the stems of these plants is abundantly compensated by the splendour of their flowers, none of which yield the palm to the splendid blossom of the night-flowering *Cereus* (*Cereus grandiflorus*), about eight inches in diameter, which, with their vanilla-like scent, unfold in the evening, are fully expanded about midnight, and by morning faded never to revive again.

In the lecture on “The Geography of Plants,” the laws which regulate the distribution of the vegetable kingdom are discussed in the same popular style as the other branches of the science. In connexion with this subject lie, side by side, a soluble and an insoluble problem; the one soluble, because it can be stated definitely as “the Dependence of the Distribution of Plants on the Physical Conditions of the Earth;” the other insoluble, “because no definite proposition can be laid down which the inquirer may apply himself to elucidate.” To the first belong such facts as are explicable upon a consideration

of the influences of climate and temperature ; to the the latter, the more curious class which relates to the substitution, in one part of the globe, of certain representatives of species not found there, but which abound in other localities, possessing perhaps the same climatal conditions as those from which the represented species are excluded. Take, as a case in point, the Ericaceæ and their allies.

“From the southern point of Africa to the North Cape in Mageroe, the heaths extend throughout the Old World, merely leaping over the proper tropical regions. With the same latitudes, the same climate, and similar conditions of soil, we find not a single species of true heath in all America. Other allied plants replace them, plants which at least belong to the same family (the Ericaceæ) ; but if we go to Australia, we find under corresponding conditions, not one Ericaceous plant, but in their place appears an allied, but wholly peculiar family of plants, the Epacris tribe.”—p. 240.

Then again the leafless fleshy Euphorbias of the Old World are represented, in form at least, by the Cactaceæ of the New ; and yet the Cactaceæ, though originally strictly limited to the former, are no sooner introduced to many parts of the latter, than they become perfectly naturalized, a proof that mere climate and soil have nothing to do with their original location. What, then, is the influential agent ? In the inquiry

“Two essentially different points have to be distinguished. The heath plants *occur* on dry, sunny, sandy plains ; they *extend* from the Cape of Good Hope, through Africa, Europe, and Northern Asia, to the extreme limits of vegetation in Scandinavia and Siberia ; these plants are *distributed* in this great region in such a manner that South Africa has innumerable distinct species, of which, however, never more than a few individuals grow side by side, that then, towards the north, the number of species suddenly diminishes in an important degree while the number of individuals increases, till at last, in the north of Europe, a single species, the common heather (*Calluna vulgaris*), overspreads whole countries in millions of single individuals. In the first place, we readily see that only the first determination, that of the *occurrence*, relates necessarily to each individual ; while, on the contrary, the *range of extension*, and the *mode of distribution*, indicate causes which have scarcely any importance in reference to the single individual, but very great in relation to the larger groups of plants, which we call species, genus, tribe, &c. From this it follows, that the former only, the occurrence of plants, is related wholly, while the other two are related but partly, to conditions explicable by physical

influence ; yet we must, at first, keep more to that arrangement, since it is strictly logical, which will remain fixed for incalculably long time, while, of course, the last arrangement only holds good for the existing condition of science. When, namely, we review the various influences upon which the life and healthy vegetation of a plant are, according to our present physiological knowledge, dependant, we quickly find that only a small number of physical forces are as yet detected by us, in their action upon the organism, that on the other hand, a proportionately large number at present altogether baffle our endeavours after a more accurate comprehension of their action, although we may safely assert that the life of the plant is, and must be, as much dependant on them as upon the others. Merely by way of example, I will mention light, electricity, and the pressure of the atmosphere. The two first, as continually in action in every chemical process ; the last, of essential importance in all the processes and relations between gases and vapours ; must likewise powerfully affect the life of the plant, which consists in progressive chemical combinations and separations, in continual absorption and excretion of vapours and gases. The *how* is as yet a complete mystery to us, and many of the at present wholly incomprehensible conditions in extension and distribution, may sooner or later find sufficient explanation in these influences.”—p. 242.

In his remarks upon “the Dependence of the Distribution of Plants on Physical Conditions,” from which the above extract is taken, the author gives a graphic sketch of the various appearances successively presented to the eye of the botanical geographer as he scans the vegetation of the globe, from the “snow-covered ice-plains of the extreme North, where the red-snow *Alga* alone reminds us of the existence of vegetable organization,” in a southward direction, down to the garden of Orotava, in Teneriffe, where the gigantic arborescent lily-like *Dracæna* “recounts to the musing listener the traditions of thousands of years.” The six zones of vegetation thus passed through have presented us, in conjunction with the continually increasing temperature, a continually differing and ever a more luxuriant vegetation. Ascending the Pic of Teyde, and counting by the limits of vegetation, we may then re-survey in a few hours’ climb, the wide journey from Spitzbergen to the Canaries, an extent of upwards of fifty degrees of latitude. In our ascent of the Pic we find that

“Man has taken possession of the soil of the plain at its foot, and dislodged the original vegetation. Through vineyards and maize-fields we ascend, till the shades of the evergreen bay-laurel surround

us. Trees of the lace-bark tribe and similar plants succeed; we wander for a time through *a zone of evergreen forest trees*. At a height of 4,000 feet we lose the plants which had so far accompanied us. A very small number of peculiar plants mark a quickly traversed *zone of deciduous trees*, and we come among the resinous trunks of the Canary pine. A *zone of Conifers* shields us from the sun's rays up to a height of 6,000 feet, then the vegetation suddenly becomes low,—from humble bushes it passes into a Flora which bears all the characters of the Alpine plants, till finally the naked rock sets a limit to all organic life, and no snow and ice bedeck the summit of the mountains, only because its height of 12,236 feet does not, in a position so near the tropics, extend up to the region of eternal snow.”—p. 246.

Facts of this description inevitably lead to the conclusion that the intensity of light, the pressure of the atmosphere, the constitution of the soil, and conditions of temperature and moisture, all exercise considerable influence upon vegetation. But this will not account for the other class of facts adverted to; it will not explain why the common daisy (*Bellis perennis*) should occur in Europe (almost universally), in Australia (where it has probably been introduced), in Northern Asia, in some parts of Africa, and in South America, without deigning to favour North America with its presence, except as a choice exotic, tended with the most jealous care in botanic gardens. In the words of our author, it does indeed seem to us

“Wholly the result of caprice, that particular plants are distributed widely over the globe, while others must live cribbed in the narrowest spot, as, for instance, the *Wulfenia*, occurring exclusively on the Carinthian Alps; that particular families, like the *Compositæ*, flourish abroad over the whole earth, while others, like the peppers and the palms, only occur between very definite degrees of latitude on either side of the equator, the *Proteaceæ* only in the southern hemisphere, the *Cactus* tribe only in the western half of the earth. Just as inexplicable is the *mode of distribution* of the families of plants. While the palms diminish in number from the equator into high latitudes, the *Compositæ* attain their highest development in the zones of mean temperature, their number of species diminishes from these in both directions, equally towards the equator and towards the poles; while, finally, the grasses increase constantly from the equator towards the poles.”—p. 257.

Such considerations teach us the absolute necessity for the further accumulation of *facts*; and the necessity is not limited to this parti-

cular branch of Natural Science, but is equally extended to all, even to those which now seem to stand upon the surest foundation. The grand difficulty, as Schleiden well says, is to state the question correctly—to know positively what we require, and to state our wants in positive terms. The history of every science is this:—

“Series of facts accumulate, evidently allied in their nature; if the quantity become considerable, they are collected, in systematic arrangement, into a so-called science, but the seeker wanders hither and thither without hold or aim; material is heaped up, and yet science does not advance one step. Then comes a man, eminently gifted with genius, or frequently even merely one happily favored by accident, and gives definite expression to the problem, for the solution of which men had been tormenting themselves without knowing it; and now all the mental powers of the inquirers are suddenly directed to this one point. Down fall the barriers in rapid succession, and science advances with giant strides, till she comes again to a point where all progress is obstructed, where everywhere is met a flat and impenetrable wall, and now the same process of development must be repeated anew, in a higher stage, till again a new leader strike on the right place, where the wall rings hollow, and thus betrays the possibility of a further advance.”—p. 237.

In the eleventh lecture we have a sketch of “The History of the Vegetable World,” from the first faint indications of vegetation through its successive stages up to the present fair clothing of our earth. Much of this is, of course, conjectural, though the few great landmarks presented to us in the grand stone herbarium of other days warrant us in believing that in this case conjecture is not far wide of truth. A history of the early vegetation of the earth, must of necessity involve to a certain degree the history of the early ages of the earth itself, its successive changes of climate and its various rock formations; the following sketch contains an abridged view of the argument.

“The gradual development of the vegetable world commenced with the simplest plants, and advanced gradually through the succeeding periods to the most perfect plants of our existing vegetation. The structures of the first period correspond to a tropical climate contemporaneously extended all over the globe, which passed by degrees from the poles towards the equator into the present climatal conditions; and keeping pace with this appeared another change, for the plants of the oldest period, which seem to have been equally distributed over the whole earth, by degrees were confined into regions of distribution, and so passed into the great geographical variety of the

vegetable world. The gradual conversion of the universal tropical climate into the present climatal zones, may be shown in another very interesting manner, in quite a special instance. All ligneous trunks of Coniferous trees continually increase in thickness at all parts of their circumference. In the equatorial regions, where the climate retains the same character uninterruptedly throughout the year, this thickening of the trunk proceeds without interruption, and homogeneously ; no mark betrays, in a smooth transverse section of the stem, the time which was required for its formation. As we proceed towards the north, however, as the climatal conditions produce continually increasing diversity in the particular seasons, the corresponding growth in thickness shows itself to have been furthered by the favourable season, and restrained or altogether interrupted by the unpropitious times. In a cross section of a stem are seen, the higher the latitude in which it has grown, the greater differences in the structure of the successive portions of the wood ; until, finally, in the latitudes where there is a severe alternation of winter and summer, so striking becomes the difference between the wood last formed in summer and that first produced in the next spring, that we may count in the number of annual marks thus produced, in a cross section, with great certainty and accuracy, the number of years which have been occupied in the formation of the trunk. The circular lines upon the cross section, well known to every forester, are thence called the *annual rings*. When, fortified with the knowledge of this fact, we compare with each other the trunks of the Conifers which we obtain from the various epochs of formation, we find that the oldest remains exhibit no trace whatever of annual rings ; but in the course of time they become continually more defined, so that lastly, in the most recent formations, for instance in the upper brown coal, they appear marked just as distinctly as in the trees now living in the same localities.”—p. 286.

The assumption of repeated creations advocated by some modern naturalists finds no favour with our author, who holds the idea “of a totally new origination of vegetable germs, out of unorganized or even inorganic matters, to be superfluous, and therefore not to be admitted ;” he is content to trace back the multifarious forms of vegetation which now adorn the earth to the acknowledged first and simplest form—the cell, which we know can and does vegetate as an independent plant. And, as shown in the preceding sketch,

“We see that the vegetable world begins in water, under the simplest forms, and in that very family in which the whole plant is represented by a single cell, most frequently, in the present time. In the succeed-

ing periods the other groups are added to this, making their appearance in a series which corresponds through a continually higher organization, *i. e.*, continually more manifold vital processes, to the successively more manifold and complicated physical conditions which come into action. Thus the stemless Cryptogamia are followed by those provided with stems and leaves. Then the Gymnosperms (Conifers and Cycadeæ) enter upon the field; to these succeed the Monocotyledons, and lastly appear the Dicotyledons. Imperfect as are the documents we have obtained, and little as we have yet decyphered of them, yet in no period do we find the appearance of a wholly new creation, but the organic beings are always added gradually; the lowest members of one period succeeding to the highest members of the foregoing, in such a manner that they at least repeat its principal type; nay, we may even say more than this: if both genera and species, or even families of plants, have disappeared from the earth, there does not exist, even in the oldest remains, any peculiar great group, a form of plants constituting as it were a stage of development of the vegetable world, which has not its representative also exhibited in the Flora of the present world.

“This view, that the whole fulness of the vegetable world has been gradually developed out of a single cell and its descendants, by gradual formation of varieties, which became stereotyped into species, and then, in like manner, became the producers of new forms, is at least quite as possible as any other, and is perhaps more probable and correspondent than any other, since it carries back the absolutely inexplicable, namely, the production of an organic being, into the very narrowest limits which can be imagined.”—p. 292.

This, it will be said, is Vestigianism; but it differs from that doctrine, inasmuch as it supposes the gradual addition of new organs to those previously present, not the transmutation of such organs into others. As the author observes—“That the germ of inorganic life came forth upon the earth once, at least, out of the strife of the inorganic elements, admits of no doubt;” still, there is another question—“has this process occurred more than once? And *must* it have occurred more frequently?” He further asks—“Since in these matters every one has, and may have, his own proper fantasies, why should not I too have mine?”

The lectures conclude with one upon “The Æsthetics of the Vegetable World.” And here we can neither pretend to follow the author in his metaphysical flights, nor to be able to give our readers any intelligible account of them: choosing rather to quote the lines of Faust used as a motto to this lecture, as meeting our own case:—

“ The import of the shapes, I wished
 In magisterial wise t’unfold;
But what I could not comprehend
Might not of course by me be told.

The grand object seems to be the “ tracing the symbolization of the vegetable world, through every form of Divine worship that has existed among the various races of mankind.” But, fearing that by this time our readers must be aweary of a subject already extended beyond all reasonable length, we must plead as an excuse for prolixity the generally interesting nature of a book, some idea of which we have endeavoured to lay before them by means of the extracts we have culled from its pages; not with a view of superseding a reference to the work itself, but rather in the hope that some at least may be tempted from our samples to make themselves acquainted with the original; where, although certain things may be encountered calculated to startle those who are unacquainted with the German mode of treating scientific matters, yet we must say that we consider the English botanist to be under an obligation both to author and translator for the production of a book well calculated to vindicate the claims of Botany to a far loftier position as a science than many, even at the present day, are from ignorance of its merits inclined to accord it.

L.

Observations on certain Plants occurring near Dumfries.

By PETER GRAY, Esq.

ABOUT the middle of last month I gathered *Pyrola media* and *Lycopodium alpinum* in some quantity for distribution. The only habitat at present known in this district for these rather rare plants is upon the eastern slope of those hills which hem in the vale of Dumfries on its western side, above and some hundred yards to the north of the mansion-house of Dalskairth, in the Stewartry of Kirkcudbright. While thus engaged I noticed so many plants not generally met with, and these in such profusion, that I am tempted to give you a brief account of my ramble. The district in question, not to speak of the range of hills of which it forms a very small part, has never been examined with much attention, although I am convinced it would well repay it. On the day upon which, in company with a friend, I last visited it, the beams of an almost vertical sun flashed on our heads,

“Not, though in northern clime, obscurely bright,
But one unclouded blaze of living light.”

Our walk from Dumfries was a perfect martyrdom, the road nearly to the foot of the hills being entirely unsheltered, and the ground rising the whole way, while not a breath of wind stirred the glowing air. Just before entering the pass for the side of which we were bound, and about that part of the road where the Cumberland mountains first break on the view away over Mabie Moss and the Solway Firth, in the corner of a field on the right, is the first station I knew for *Sanguisorba officinalis*, which is not, however, anywhere uncommon in our neighbourhood. A little further, nearly opposite the road through the moss, I picked in the hedge, from one of a number of plants of *Linaria vulgaris*, an imperfect specimen of the *Peloria* variety. The lower lip of the flower was quite flat, long, and curiously awry; the spurs were two in number. I have found many incomplete, never a perfect example of this variety, growing on the bank now noticed. About a quarter of a mile onward we struck off the road to the left, and commenced the ascent of the hill by a foot-road, steeper in many parts than the roof of an ordinary house. Here, among immense quantities of the wood strawberry, the bilberry, *Polypodium Dryopteris*, and other neighbours more characteristic of the oak copse lately cut down than the present comparatively bare condition of the hill side, and near its summit, we found a few stray specimens of *Rubus saxatilis* in fruit; but my companion, more of an epicure than a botanist, who preceded me, had plucked and eaten the ripe drupes before I knew or could prevent him. We had now arrived at a limited upland, partially cultivated, and affording sites for two farm-houses, the northernmost named, I believe, Hillhead. Passing this quickly, we pushed up the hill, but were soon forced to throw ourselves, panting, under the welcome shade of a stunted, though, fortunately for us, an umbrageous tree. Indeed, I never recollect being exposed, on a similar occasion, to such intense heat. By-and-bye, however,

“There crept
A little noiseless noise among the leaves,
Born of the very sigh that silence heaves,”

which later in the afternoon increased to a refreshing gale; and a haze having also partially veiled the sun, the remainder of our ramble was accomplished with something like comfort. Yet, apart from

every other consideration, the view from the point in which we were derved, amply compensated all the toil of the ascent. A great portion of a populous and fertile valley, bathed in all the radiance of a glorious summer's day, lay at our feet, studded with houses, variegated with fences innumerable, patches of wood, and crops of every kind and hue, the whole surface beautifully undulating, upon which the eye never tired of resting, with

“ Town and village, dome and farm,
Each lending each a double charm.”

Northward, and to the east, sate Queensberry among his myrmidons—

“ Mountains on whose barren breast,
The labouring clouds do often rest ;”

on our extreme right the still more majestic Criffel ; and, beyond, the sparkling waters of the Solway, from which up the estuary and along the tortuous channel of the Nith the tide was stealing like a crested basilisk ; while far out upon its bosom, like sea-birds, floated numbers of coasting vessels, clumsy and uncomely enough when close at hand, but graceful and gay in the distance. And opposite us, upon its table-land, lay Lochrutton loch, like a mirror, placid and lonely, with the white walled hamlet of Merkland glistening in the sun. Moving northwards along the full round brow of the greywacke hill upon which we stood, we soon came upon a profusion of *Lycopodium alpinum* in fruit, and very abundantly furnished with spikes. By the way, I may remark that the spores of this plant are even more inflammable than those of *L. clavatum*. Here also I picked up a *Carex* not unlike *C. stricta* in several of its characters, and observed plenty of *Empetrum nigrum* (in fruit, of course), along with many of the plants usually found in its company. Returning towards Hillhead, we found *Gentiana campestris* sparingly ; and among the heath in abundance *Habenaria bifolia* and *Pyrola media*, both beautiful objects, interspersed with the yellow flowers and bright green foliage of *Genista tinctoria*, with *Linum catharticum*, &c. Near this place I gathered some years ago a single specimen of *Pyrola rotundifolia* : I have never met with another. The most striking object, however, was *Lycopodium clavatum*, on this part of the hill forming patches about two feet wide and many yards in length, winding in a curious manner among the red heather, and in full fruit. Farther to the southward *Gymnadenia conopsea*, growing beside its less favoured congener *G. albida*, cast a delicate fragrance

everywhere, mingled, in the invigorating air of these uplands, with the sweetness of many a mountain flower. On some well defined tracts of a lighter green, which are probably watercourses in winter, *H. viridis* occurs, though more sparingly, with *Botrychium lunaria* on several dry knolls farther to the south; and about the margin of a rivulet in the same direction, *Lycopodium selaginoides*. Near this spot, on one occasion, I gathered *L. Selago*, thus making four out of the six British species of this genus, within a very short distance of each other, on one hill-side. On the banks of this stream, still lower down the hill, a friend used to gather *Jungermannia tomentella* with calyces, although never lucky enough to find it in fruit; and another orchid, not very frequent with us, *Neottia Nidus-avis*, grows in the same neighbourhood, along with *Bartramia arcuata*, *Hypnum brevirostre*, *Hookeria lucens*, and *Neckera crispa*, all plentifully in fruit in their season, with other *Cryptogamia*, the names of which it is unnecessary to recapitulate.

The extension of the empire of cultivation is all very good; but one of its results is occasionally not a little annoying. The plough is rapidly assuming a supremacy over one of the best, if not the very best, botanizing grounds about Dumfries—the borders of the pond that supplies water-power to Stakeford Foundry, known to curlers, skaters, and truant school boys as Maxwelltown Loch. A year or two bygone, urged by the apparition, a few months previously, of several cartloads of tiles about the spot, I visited it for the purpose of securing what I feared would be a last bundle of *Eriophorum pubescens*. Instead of the object of my search, however, I found a very flourishing crop of *Solanum tuberosum* in lazy beds; and the disappointment was the occasion of a not very patriotic couplet I find in the margin of my Hooker. Drainage has also destroyed our locality for the variety of *Carex limosa* honoured by some botanists with the specific title of *irrigua*; and I am very much afraid that *Carex limosa* herself will be obliterated this year or next by the same process, surrounded, as she is, in her only habitat in this quarter by land gaping for potatoes.

Is *Carex muricata*, *Linn.*, a good species? I gathered on the 10th of July a few specimens of a plant which I have thus entered in my note-book:—" *Carex muricata*. The spikelets of this plant are sterile at their upper extremity, and generally six, always more than four in number; the stems are from one and a half to two feet in length, as long as, perhaps rather longer, than the leaves; and the fruit is smooth on the greater part of its bordered margin, but rough at the beak.

On the other hand it approaches *C. stellulata*, in the next division, if not in the relative length of stems and leaves, and in the smaller size of the fruit, at least in the latter being green and not yellow-brown in colour. The spikelets are also too distant from each other, and the bracts too large for my idea of *C. muricata*. The *Carex* I gathered in 1847, in the wood beside Lincluden, seems intermediate between this and *C. stellulata*, as this is between it and the one from the roadside opposite Lincluden Lodge, which agrees in every point with the description in Hooker, the only constant and perfectly appreciable character common to the three being the smooth margined capsule."

PETER GRAY.

Queen Street, Dumfries,
August, 1848.

Notes of a Botanical Excursion in Hampshire.

By JOSEPH WOODS, Esq., F.L.S., &c.

I STARTED on the 8th of June for a little excursion into Hampshire and Dorsetshire. At Southampton I observed, as I do at Lewes, two forms of *Bromus mollis*. One with short branches to the panicle, many of them bearing two or three spicules, the whole much contracted after flowering; the other with the branches of the panicle much longer, and hardly or not all divided, and the panicle but slightly contracted after flowering. I cannot say that we do not sometimes observe intermediate forms, but I cannot clearly see in what the second differs from *B. racemosus*, except in the pubescence. The longer simple peduncles are generally longer than the spicule, as they are in *B. commutatus*, and not unfrequently in *B. racemosus*.

On the 9th I again got upon the railway, retracing my steps as far as Bishopstoke, and thence proceeding to Rumsey, where my principal object was to see the magnificent Norman church, which I had never visited. I walked here along the Salisbury road, and then through the woods of Emly to what was once Rumsey Common, now a grove of fir-trees, returning by the Heathcote monument (which I did not see), near which I found *Pyrola minor*, the only prize in this day's walk.

The 10th was wet, and I spent part of the morning in sketching the church, and then took a fly to Lyndhurst. The landlord at the White Horse, at Rumsey, charged me 5s. for the sitting-room. It seems to me that many of our innkeepers have lately endeavoured by

an increase of charges to make up the deficiency occasioned by the rail-roads. I have no objection to paying a moderate sum for the sitting-room. I prefer having and paying for the accommodations I really wish, to being expected to call and pay for things which I do not want, but then it seems but fair that the charges which were added to what we eat and drink, as a compensation for the use of the room, should be reduced. As far as my experience goes, however, where we have to pay for the sitting-room we have to pay higher for everything else. Thus, to compare my expenses at the White Horse here with those at the Ship, at Swanage, where the mode of life was the same, and the accommodations as nearly equal as possible, I find that at the latter they amounted to 7s. 3d. $\frac{1}{2}$ day, and at Rumsey to 15s., almost every article being charged higher at the latter place, besides the charge for the sitting-room.

After attending church at Lyndhurst I took a walk on the forest. There is a fine, high, heathy table-land, not devoid of trees, affording a magnificent view, which embraces both ranges of chalk hills, the Isle of Wight and the blue hills of Dorsetshire. The ascent is steep and bold, but this higher land is very little seen from other parts of the Forest, which I confess I rather complain of as tame and monotonous. There is, however, some very pleasant and well varied country immediately about Lyndhurst. Of plants I saw nothing rare for this part of the world. *Carex pulicaris*, *Osmunda regalis* and *Pinguicula lusitanica* occur in the bogs. *Agrostis setacea* is the grass of the dryer sandy and gravelly heaths, and *Festuca tenuifolia* is also not unfrequent. Babington says of *F. ovina* (in which he includes *duriuscula*) "Root not truly creeping," which seems to indicate that he perceived traces which approached to a creeping root. Smith says of *ovina*, "Root of long fibres;" of *duriuscula*, "Root scarcely creeping." Koch attributes a fibrous root to *ovina* and *heterophylla*, which, as he often puts fibrous in opposition to creeping, seems to imply that in these plants he considers it as not creeping. Cosson and Germain, who distinguish *duriuscula* both from *ovina* and *heterophylla*, say nothing of the root. Bertoloni says that the root of *duriuscula* (including *F. ovina*) sometimes emits short runners. I find in the usual form of *ovina* and *duriuscula*, as well as in the foreign *heterophylla*, which is perhaps only a variety of *duriuscula*, a slender, creeping rhizoma, which seems to be generally wanting in *tenuifolia*. It is brittle, and I believe never comes up with the plant when the latter is pulled up.

The 12th was again wet, and my walk along the Christchurch

road very unsatisfactory. I was quite too early for the *Neottia*, and a range of bog which looked very promising yielded nothing.

13th. Again heavy showers in the morning, which prevented me from visiting Costicles Park. I took the rail-road to Brockenhurst, whence an omnibus conveyed me to Lymington. Of Mr. Smith's *Scirpus parvulus* I am afraid there is very little hope, at any rate I was much too early for it. *Sclerochloa Borreri* is abundant, and there is also some *S. procumbens*. The *Borreri* was only just beginning to flower. The salt-works from forty are now diminished to eleven. On the 14th I crossed at the ferry and walked up to Sir H. Burrard's monument, a beautiful spot. I then continued along the shore, where *Oenanthe pimpinelloides* is abundant, and from here to Wareham and Lulworth it is a common plant, not at all particular as to soil or situation, but rather, I think, flourishing best in a sandy loam. Mr. Watson thinks the roots not sufficient to characterize the plant, but I have never seen any when in flower or fruit where the root was not decisive. The children eat the tubercles under the name of earth-nuts. *Carex divisa* is abundant and very luxuriant, and we meet with a little *Artemisia Absinthium* on a gravelly soil. *Senebiera didyma* and *Linum angustifolium* occur along the shore.

I walked from Lymington to the station at Brockenhurst without adding anything to the plants I had already observed. There is a range of hills of a dry, white gravel, with boggy ground at the bottom, which seemed very promising, but afforded nothing but the common plants of the country. The railway took me to Poole. In the evening a heavy storm came on, but the next day I walked to Bourne Mouth, taking in my way the station of the *Simethis bicolor*, *Kunth*, *Anthericum planifolium*, *Linn.* The idea suggested by its position is that it originally occupied a space of perhaps twenty yards in diameter, which was cut through by a road when the fir-plantations were made, *i. e.*, as I understand, about forty years ago. It grows on open, barren heaths in the west of France, and I should think is not at all connected with the fir-trees. There seems to be only this one patch, at least I saw it in no other spot, though I calculated that my various traverses of heaths and fir-plantations (there is nothing else about Bourne Mouth) on this and the following days, could not be less than thirty miles, yet it would be a singular chance that this road should happen to divide the only patch of it in the country; and my observations go but a little way compared to the great extent there is of this sort of soil in the Poole basin.

When is a tree to be deemed naturalized? Trees and shrubs, at

least such as form hedges or yield timber are so much the subjects of planting that it is difficult to decide what are truly native. There is a hedge of *Lycium barbarum* on the shore near Lymington, far from any house, and I know not how the student would be able to pronounce that it was not wild. At Malesherbes and Etampes, in France, the woods abound with *Cytisus Laburnum*, looking quite as if the natural produce of the country; but it has been planted for fuel. In the same neighbourhood we meet with *Syringa vulgaris*, and this is also planted in Germany as a shelter for the game. We have, I believe, no originally indigenous *Pinus* in England, but the seeds of *P. sylvestris* sometimes come up abundantly and form a natural wood where a sandy soil has a somewhat peaty covering, as, for instance, on Esher Common. In the Poole basin the *Pinus pinaster* propagates itself, and at Alum Chine, and perhaps elsewhere, we may make out a strong probability of two native generations. I confess in such a case I think the tree ought to find a place in the English Flora.

My next walk was along the shore as far as Poole harbour. The sea is gaining all along the shore, which keeps it nearly clear of maritime plants. Towards the harbour the sand-hills yielded me *Triticum junceum*, and *Festuca rubra* of the form which has been called *sabulicola* by some continental botanists. We have a series in this tribe in the structure of the root: first, *tenuifolia*, which seems to have the least of a creeping rhizoma; then *ovina* and *duriuscula*, where it is very slender; next *rubra*, of our hills and meadows, where it is stouter, and perhaps two or three inches long; and lastly, that of the sand-hills, where it is sometimes as many feet. A little way from the harbour is a preventive station. The guard told me he had been there six years, and that soon after he came a large part of the cliff, above 100 feet in width from his description, gave way, and descended so gradually into the sea that a person might have stood upon it without danger.

As there are few habitations in the country there are few paths, and walking over a close, continued bed of heath and furze is very fatiguing. As there are no cattle and no sheep there are no tracks. I saw notices of cattle taken in to graze, but what they were to feed upon I do not know. I saw no cattle, nor even a sheep, and the whole appearance of the country is that of barrenness, more than answering to Col. Martin's celebrated description of the land in Con-nemara.

Mr. Borrer was to come on Tuesday evening to Bourne Mouth;

meanwhile I got into the omnibus and proceeded to Parkstone, a very pleasant place overlooking Poole harbour, and walked along the shore of the harbour to a place called in the Ordnance map Lilliput. It is a very pleasant walk, and just below Parkstone I got *Carex extensa*, *Schœnus nigricans* and *Scirpus uniglumis*. The latter is, I believe, a good species, though we find at Lewes a form in some degree intermediate. Returning there the next day Mr. Borrer showed me *Tillæa muscosa* on the walls of a nursery-ground. As I continued along the shore I saw great abundance of *Œnanthe pimpinelloides*. *Trifolium glomeratum* and *ornithopodioides* occur near the Little Sea. *Bartsia viscosa*, *Briza minor*, *Lotus hispidus* and *Ornithopus perpusillus* were growing near Lilliput. *Cochlearia anglica* abounds by the ditches near the harbour.

On Wednesday I went with Mr. Borrer to Corfe Castle. We gathered in the way *Rhynchospora fusca*, a plant which seems pretty widely scattered on the heaths about Wareham. Mr. Borrer returned on the same day to Bourne Mouth, and after his departure I walked among the clay-pits to the west of the road between Wareham and Corfe Castle. My principal object in taking this direction was to look for *Trifolium resupinatum*. This plant has been found at Poole and near Bristol, and in both instances apparently in connexion with clay which had been brought from the clay-pits of this district. It would therefore be very interesting to discover it here, and to give it an undoubted claim to a place among our native plants; but my search was in vain, the best plant in the walk being *Ranunculus parviflorus*, which occurs in many places in Dorsetshire. *Orchis conopsea* on the peaty heaths had a most delightful odour: on the chalky banks none at all.

The next day I walked down to Cherford Bridge, and thence rambled over Fibsworth Heath. *Erica cinerea* and *Tetralix* were both in good flower, though not perhaps so abundantly so as they will be a fortnight or a month hence; and I hoped to find *E. ciliaris* equally advanced, but in places where my memory represented the *ciliaris* as bearing its full proportion of covering the ground with the other heaths, I could find only a few shabby plants, with hardly any indication of their intending to flower this year. Indeed, if it had not been for a few remaining dried racemes of last year, I doubt if I should have observed the plant at all. In 1839 I gathered it in full flower on the 22nd August, and at Plelan, in Brittany, I had before found it on the 11th July.

In spite of the threatening weather, I set off next morning to trace

the chalk hills on the west of the town, and to ascend Creechborough. These chalk hills are of a much harder substance than those of Kent and Sussex, steep on all sides, and thence with a more mountain-like appearance, and the strata are highly inclined. In Botany they afforded me nothing but *Brachypodium pinnatum*, which is exceedingly abundant on the whole range. Creechborough is a somewhat conical point of sand and gravel, belonging probably to the plastic clay, and apparently overtopping the adjacent chalk hills, but the day was so thick I could nowhere see the horizon, and the rain came on heavily while I was on Kingsbury, and continued till I got back to Corfe Castle, preventing my farther examination of the sand and clay pits for the *Trifolium resupinatum*.

Saturday was fine, and as the glass was rising, I set off for Studland. The road keeps near the chalk hills and above the barren heaths, although it is itself, I believe, almost everywhere on the plastic clay beds. It is remarkable that these beds, where they climb up the back of the chalk hills, as on this road at Kingwood Heath and at Creechborough, have not the extreme barrenness of the lower beds. The strata are, I believe, nearly horizontal, and not inclined with the chalk, at least such is the notion suggested by the appearance of the clay-pits: these upper parts may therefore perhaps belong to a later formation. Over all this tract of country we find a *Rubus* much like *R. plicatus*, but the stem more arched and much more prickly. Mr. Borrer suggests that it may be *R. nitidus*; for my part, I hardly venture to form an opinion on a *Rubus*, but in this plant the shoots are decidedly arched and hairy, the prickles curved, and the stalk of the panicle not polished. The panicle, too, seems to be nearly simple, in all which it differs from Babington's idea of the *Rubus nitidus*.

On this walk, as in that of Thursday, I found *Orchis conopsea* abundant in dry meadows, without smell. The descent into Studland was cheered by *Trifolium glomeratum* and *subterraneum*, and *Medicago denticulata* and *Lotus hispidus*, a pretty group of one tribe growing together. On the beach at Studland, *Cynodon dactylon* was very strong and vigorous, but not yet showing any of its "horns," and beyond it, in considerable abundance, but for the most part not yet in flower, *Filago Jussiei* of Cosson and Germain. This is undoubtedly the *Gnaphalium pyramidatum* of some authors, enumerated as a species or as a variety of *F. germanica*, and I see no reason to doubt its being the *Filago pyramidata* of Linnæus, though Cosson rejects this idea and Koch reasons against it. Linnæus does not describe the *heads*, but the *flower* (*i. e.* the compound flower) as pyramidal,

which is strikingly the case in the present plant. The observations of Messrs. Cosson and Germain are abundantly sufficient to stamp it as a good species. Passing over Ballard Down, I observed several of the corn plants of a chalky soil, as *Linaria Elatine* and *spuria*, and all these occur, not only on the chalk and limestone, but also on the intervening clay and loam of the Wealden formation.

After church on Sunday I walked along the shore to the foot of Ballard Down, and then turned inland along the foot of the down. In one of the little drains that trickle from the cliff I got *Scirpus Savii*, and at the foot of the downs *Rubia peregrina*.

On the Monday morning I walked up Nine-barrow Down, one of the highest of these chalk hills. Just before reaching the open country I fell in with two tufts of *Iris fœtidissima*, with yellow flowers. I was the more struck with this, as Mr. Borrer had just been mentioning that he thought he had seen such a thing in the gardens at Hampton Court.

My chief object at Swanage was the *Phalaris paradoxa*, but the discoverer, Mr. Hussey, was not at Swanage. However, I found that Mr. Willcox, a surgeon of the place, was well acquainted with the plant and its habitat, and he kindly undertook to conduct me to the spot, premising, however, that the field had become a potato-ground, and that none of the plant was to be found. We of course looked in vain. It seems to have been pretty abundant in a space of about thirty or forty yards square, in one corner of a corn-field, and there was no account of any foreign seed having been sown there at any time. The soil seemed rather a stiff loam on the Wealden beds, some of which on the Isle of Purbeck are very sandy, but that is not the case in this field. Leaving this field and crossing a lane we came on the yellow variety of *Iris fœtidissima*, which may therefore be presumed to be not very uncommon in this neighbourhood. A *Daucus* abounds here, which I take to be the *maritimus* of Withering and hispidus of De C., at least as far as regards the French plant, but of course the fruit was not yet formed. Mr. Willcox informs me that the poor employ it as a diuretic. Mr. Willcox possesses a very interesting collection of the fossils of the neighbourhood, particularly of the fishes found in the Purbeck beds, and also some leaves from the plastic clay.

On Tuesday I proceeded by stage to Wareham, and thence by railroad to Wool. There I engaged a lad to take my luggage to West Lulworth, and proceeded myself on foot, but the walk is not interesting; yet had the day been fine I should probably have found amuse-

ment in the distant views ; for the road lies very high for a considerable portion of the way. The interest of West Lulworth lies entirely in its singular broken shore, where we see the Purbeck limestone rising from under the chalk hills, with more or less of the strata of the Wealden and of the green sand between them. In one or two places the strata are absolutely reversed, and the green sand appears to rest on a chalk very full of flints. The chalk strata are very much inclined, or quite vertical, as in the Isle of Purbeck, but the singularity is, that there and here, these highly inclined strata are backed by horizontal strata of chalk. A little way west of West Lulworth is a perforation in the limestone rock called Duddle Door, and near this we find abundance of *Statice spathulata*. The leaf is rather broad, with an uninterrupted margin continued behind the mucro. In Sussex we have a variety with a broader leaf, but in which the mucro is usually or always terminal. *Crithmum maritimum* is abundant both on the chalk and the limestone, and on the chalk a form of *Arenaria marina*, with a very stout, woody root, showing several concentric circles. Most botanists describe *A. marina* as an annual, I doubt if correctly, and Babington inserts a p. ?. *Erythræa latifolia*, I believe, occurs on the intermediate Wealden, but I am not very confident in my power of determining this species. In the little bay between Duddle Door and Lulworth I observed a good deal of a *Brassica* which I had noticed in August, 1837, in this neighbourhood, distinguished from *B. oleracea* by the turgid and seed-bearing beak. My friends Mr. Borrer and the late Mr. Janson have assured me that it retains this character in its progeny, and both agree that the plant is distinguishable in all stages, though it would perhaps be difficult to describe the difference so as to identify the plant independently of the pod. I found this plant again the next day, on the little opening to the shore which exists at East Lulworth, on the chalk cliffs. I did not anywhere observe it on the limestone, but Mr. Willcox informed me that the quarry-men in Purbeck make use in the spring of a cabbage they find on the cliffs. Query if this is the same, and also if the plant of Dover cliffs have a seed in the beak. De Candolle has a section of the genus *Brassica* distinguished by having a seed in the beak, but these, with the exception of *B. Richeri*, belong to the genus *Erucastrum*. The German and Italian Floras do not mention *B. oleracea* as a wild plant, and they have no species to which this can be attributed ; for though two or three of them have constantly or occasionally seeds in the beak, the descriptions are very different in other

respects. Loiseleur mentions *B. oleracea* as native of the Atlantic shores of France, which Duby limits to those of Normandy.

On the top of the chalk cliffs near Duddle Door grows *Erodium maritimum*, and on the banks above a large corn-field, east of West Lulworth, there was abundance of *Ophrys apifera* and a few plants of *Orchis ustulata*. These are all the rarities I noticed in the neighbourhood. On my return through Wareham I examined a plant which is probably the *Cœnanthe fluviatilis* of Coleman, though the description does not quite agree. The place where I was able to get at it was just above a mill on the Piddle, a little above Wareham, in a gentle current, and the water perhaps two feet and a half deep. The stems there were erect, very hollow, not angular, and somewhat thickening downwards to the root, but with a slight contraction between the root and the stem, with numerous whorled fibres, but not so numerous or so thick as in *Cœ. Phellandrium*. In other places, in a stronger current, the stems were drawn out as described by Coleman, and appeared not to thicken from the middle downwards. The submersed leaves exactly correspond with his figure and description; but though I feel confident that they belonged to the same plant, I could not get up any in connexion with the flowering stem, which produced no leaves entirely under water. It does not appear that *Cœ. Phellandrium* has any of these submersed leaves at this time of year. The plant is abundant in the Frome and Piddle, and also in the Avon, and probably in the Stour, flowering freely, but at present the seeds are of course very imperfectly formed. Wareham stands on a sandy point of land between the rivers Frome and Piddle, and its ancient boundaries are marked on three sides by an earthen bank, forming a pleasant walk. The fourth is formed by the river Frome. This projecting point, though sandy, is of not so barren a soil as the heaths which occur at a little distance both on the north and south sides of the town. From Wareham I returned by railway direct to Lewes.

JOSEPH WOODS.

Lewes, August 1, 1848.

On the Number of Botanical Species to a Square Mile of Ground.
By HEWETT C. WATSON, Esq.

IN the 'Phytologist' for this present month Mr. Coleman intimates his opinion, founded upon observations in the county of Hertford, "that if a square mile be taken at a venture, its flora may be considered a good one if it amount to as many as 200 species" (Phytol. iii. 220). Were it possible for a botanist to map out the whole of Britain into square mile sections, and fully ascertain the species of each section, I think it probable enough that 200 species to a mile of rural surface might prove over rather than under the average number. In a general sense, I may therefore concur with the opinion expressed by Mr. Coleman, although there is some degree of discrepancy between us.

On some of the elevated moors of Scotland, where the surface is pretty uniform, and is still left almost in a state of nature, many square mile sections might likely be found each containing less than one hundred, possibly even less than fifty species of flowering plants. But in England I doubt not that many square mile sections might also be taken, within which a botanist would find more than 300 species, and in several of them more than 400.

By way of putting this to a practical test, since reading the valuable paper by Mr. Coleman, I have reckoned up the species on a square mile of surface immediately around my own house. I find that nearly 400 species can be enumerated as certainly wild within the extent of the mile; and if adding to the list about a score of introduced and unsettled species, the number may be raised to 410 species or upwards. By enlarging the boundaries so as to extend the single mile into a space of twenty-five square miles, I find that my enumeration will give 660 species, including aliens and unsettled species or varieties. The whole county of Surrey would probably be found to include upwards of 800 species, fully double the number in the single square mile.

I take the square mile immediately around my own abode, as being that one with the productions of which I feel myself most familiar. It presents considerable diversity of situation for plants, with little variety of soil; the latter being either clayey loam or gravel, with a few very small patches of sand. The mention of a dozen generic names will indicate tolerably well the variety of situation; namely, *Hydrocharis*, *Actinocarpus*, *Calluna*, *Jasione*, *Verbena*, *Lycopsis*, *Helminthia*, *Briza*, *Silaus*, *Hyacinthus*, *Circæa*, and *Orobus*.

I must now beg leave to apply the above fact in corroboration of a conjecture hazarded in print a dozen years ago, and which has been referred to by Mr. Coleman, from memory, not quite correctly. In the same paper from which I take the short extract quoted above, that gentleman writes thus:—"The data acquired in the course of the investigation of the flora of the county in question on the above plan, may serve to correct the statement of Mr. Watson (in one of his works, which the writer has not now at hand to quote with precision), to the effect that a single square mile will be found to contain half the species of a county. This, however, will be found to be a considerable overstatement, unless a square mile be selected containing every variety of soil and situation." (Phytol. iii. 220).

But on reference to the passage, as actually printed in one of my earlier volumes, I do not find any positive statement, but simply a conjecture on the subject; and the conjecture is only to the effect, that a square mile may be found containing half of the species of a county, without implying that any or every square mile "taken at a venture" will contain so large a number. After showing that the average number of species in twelve local floras for counties or lesser tracts does not greatly exceed 700, I added the following remark:—"On the average, a single county appears to contain nearly one half the whole number of species found in Britain; and it would, perhaps, not be a very erroneous guess to say, that a single mile may contain half the species of a county." ('Remarks on the Geographical Distribution of British Plants,' pp. 41—42. 1848).

HEWETT C. WATSON.

Thames Ditton, August 3, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, August 4, 1848.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced:—

British plants from Dr. Mateer, Mr. Daniel Stock, Miss Griffiths, Mr. Daniel Oliver, jun., Mr. P. Gray, and Mrs. Russell. Foreign plants from John Ball, Esq. Part III. of Vol. 11 of 'Journal of the Statistical Society of London,' presented by that Society. A complete set of the 'Journal of the Pharmaceutical Society,' presented by that Society.

The Rev. R. H. Webb, of Essendon, Herts, William Godley, Esq., of Hallingford, Berks, and F. A. Gace, Esq., of Camberwell, were elected members.

Mr. Hewett Watson presented specimens of Jordan's *Filago canescens* from Claygate, and *Filago lutescens* from Fairmile, both in Surrey. These plants are two forms of the Linnean *Filago Germanica*. The former is the commoner British form; the latter of the two (*F. lutescens*) probably answering to the Rev. G. E. Smith's *F. apiculata*, although some parts of Mr. Smith's description of this plant seem more applicable to *F. Jussii* of Jordan. A plant scarcely distinguishable from *F. Jussii* has been lately found near Walden, in Essex, by Mr. G. S. Gibson. Other specimens of *Filago* were also exhibited from Mr. G. S. Gibson, sent by that botanist as examples of *F. Jussii* and *F. apiculata*. Mr. Gibson's specimen of the latter, gathered at Thetford, appears quite identical with Mr. Watson's specimens of *F. lutescens*; and Mr. Watson intimates that the form considered by Mr. Gibson to be *F. Jussii* (*Coss. and Germ.*) occurs in several places about Esher and Thames Ditton, intermingled with the more usual form of *F. Germanica*, which latter is the *F. canescens* of Jordan.

Mr. Gibson also exhibited specimens of *Apera interrupta*, found by the Rev. W. W. Newbould near Thetford, and of *Orobanche Picridis*, found by the same gentleman at Comberton, near Cambridge.

Mr. S. P. Woodward communicated a paper, being "Notes on the Flora of Gloucestershire."—*G. E. D.*

Notes and occasional Observations on some of the Rarer British Plants growing Wild in Hampshire. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 213).

Malva moschata. In various parts of the county and the Isle of Wight, not uncommon in woods and hedges. Hayling Island. About Clanfield.

——— *sylvestris.* A rare and beautiful variety of this otherwise abundant plant grows on chalky declivities amongst corn-fields above Sandown Bay, Isle of Wight, at an elevation of some hundreds of feet above the sea. The flowers are of a delicate, pale, nearly sky-blue colour, much like those of *Cichorium Intybus*, but with a slight

shade of purple. I found some years since, at Ryde, another singular variety of this species, in which the flowers were hardly one-fourth the usual size, of a deeper, more uniform purple, with fainter streaks, the petals narrower in proportion, more acutely notched, and scarcely equal to the columns of fructification which protruded in the yet not half expanded flower-buds. As Dr. Salter, to whom I showed it, aptly remarked, this variety stands in the same relation to *M. sylvestris* (the common form) as *M. pusilla* does to *M. rotundifolia*. I have not since fallen in with this remarkable plant. Two additional forms of *M. sylvestris* occur in this island, the one with an erect, the other with a prostrate stem. A beautiful variety with white flowers of a satin lustre grows at Norton, Isle of Wight, and in Hayling Island.

—— *rotundifolia*. Not so common in the Isle of Wight as *M. sylvestris*, though generally distributed over the island, and I presume the entire county. Most frequently here in or about farm-yards.

‡ *Lavatera arborea*. Said to grow wild at Hurst Castle, on the authority of Pulteney, but I could never find it there or elsewhere in the county where it could be deemed indigenous. Universally cultivated in the Isle of Wight, and occasionally found on waste ground as a stray from cottage-gardens. Sparingly naturalized on a rock at Ventnor.

Althæa officinalis. Abundant on many parts of the coast both of the mainland and island, in salt-marsh ground, and along tide rivers and creeks. Hayling Island.

Tilia parvifolia. Truly wild in aboriginal woods on the chalk at Bordean Hill, near Petersfield, especially in Ridge Copse, and in a sloping wood adjoining the old chalk-pit on the right going up the hill (where *Herminium Monorchis* grows), not sparingly, May 24, 1848. The trees being here treated as "rice" (German *Reis*, *Reisholtz*, *Reisig*), or brush, are cut periodically with the copse wood, the beeches alone being allowed to stand, and hence appear only as large shrubs, ten or twelve feet high, with wood of insufficient age for flowering. The lime here puts on its most perfectly wild form, the leaves extremely small, the largest even on the young and succulent shoots not exceeding three inches in breadth, the others much less ($1\frac{1}{2}$ or 2 inches). These are very deeply cordate, and nearly equal at base, usually about the length of their foot-stalks, dark green above, glaucous beneath, and quite glabrous, but some of the trees have leaves of a light bright green, with red foot-stalks, which may possibly prove to be *T. europæa*, hardly distinct, as Fries* remarks, from *T.*

* *Corpus Flor. Provin. Suec. Fl. Scan.* p. 80.

parvifolia, in which opinion I am inclined to agree with him, having often met with cultivated limes I felt at a loss to refer to either of the two supposed species; and in the present case I find no difference but that of colour by which to distinguish them. The woods at Bordean are of purely native growth, and consist principally of beech, intermixed with oak, ash, maple, birch, elm (*Ulmus montana*), and lime, with an undergrowth of white rice (*Pyrus Aria*), whip crop (*Viburnum Lantana*), hazel, spindle-tree, &c., with here and there an old stock of yew and juniper. I understand the lime occurs in the woods of the Hon. Mr. Gaze, of Westbury, near West Meon: I have observed it apparently wild near Lymington; and I apprehend that Lyndhurst, in the New Forest, may owe its name to a prevalence there of this tree in former times. In the Isle of Wight *T. parvifolia* is very rare, being confined to a single locality, a small patch of copse-wood, surrounded by fields, near Yarmouth, where it is very abundant, and, as I from the first thought, truly indigenous, an opinion in which I am the more confirmed by its subsequent detection at Bordean in an indubitably native state.

**Hypericum calycinum*. Naturalized on banks of slipped clay along the shore a little west of Ryde, unquestionably introduced, and I believe never perfecting seed. Extensively planted in shrubberies.

——— *Androsæmun*. In various parts of the county, by no means rare. (See 'New Botanist's Guide' for several stations). Woods at Clanfield. Very common in the Isle of Wight, where there are few woods or thickets in which it may not be found, though seldom in any plenty in one spot. A beautiful ornament to cover deep hollow lanes and dells from its broad handsome foliage of delicate green.

——— *quadrangulum*. Abundant in wet thickets, on ditch-banks, &c., in the island and county generally.

——— *maculatum*? or *H. dubium*, rare? Borders of fields at Millbrook, near Southton, Mr. H. C. Watson! Hill Lane, Southton, Mr. T. B. Flower! Both these gentlemen are undecided as to which of the above species, if such they be, their plant is referrible. Besides the obtuse sepals, the leaves of both these species or varieties are copiously reticulated beneath with pellucid anastomosing veins, taking the place of the dots so conspicuous in those of *H. perforatum*, and by this mark the two species may be readily distinguished in their earliest stage of growth, when the former might be easily confounded and passed by for the broad-leaved form of the latter to be noticed presently. This essential and unvarying character has been totally

overlooked by British writers, and was first pointed out to me by my friend Dr. Wood, of Manchester, but had long before been observed and recorded by Wahlenberg.* Since the above was written I have gathered *H. maculatum* in the woods and lanes about Clanfield, August 8, 1848. This certainly coincides with the description given in Babington's Manual of *H. maculatum* rather than with the same author's diagnosis for *H. dubium*, the stems being very distinctly quadrangular, the sepals mostly minutely denticulate, obtuse and submucronate, but many of them are also quite entire, and occasionally a little pointed, and vary in shape on the same plant from ovate-elliptical to broadly-elliptical, but hardly at all lanceolate; the whole question betwixt this and *dubium* being purely one of degree, and therefore leading naturally to the inference that both are states of one and the same plant.

Hypericum perforatum. In great abundance all over the county and Isle of Wight, in almost every soil and situation. Of this we have two well-marked forms or varieties, if their extreme phases alone be regarded, but to which limits are unassignable. 1st. The narrow-leaved variety, *H. perforatum*, β . *angustifolium*, Gaud. &c., *H. veronense* of Schrank, the leaves of which are narrowly elongate-oblong† or many times longer than broad. This form is common in certain parts of the Isle of Wight, both in open places and in woods, more usually the former. For further remarks on this variety see 'Phytologist,' vol. i. p. 461. 2nd. The broad-leaved form, *H. perforatum*, γ . *latifolium*, Gaud., distinguished by the greater size and breadth of the leaves, particularly of those on the main stem, where they are truly and broadly ovate, often an inch to an inch and a half in length. This state of the plant is usually to be seen in woods and under hedges, sometimes in

* Fl. Suecica, 1st edition, 1826, ii. p. 476.

† I use the terms *elongate-oblong*, *elongate-lanceolate*, *elongate-elliptical*, to imply an oblong, lanceolate or elliptical superficies, drawn out or produced with straight sides, assuming the curve proper to each figure at the extremities only. I would instance as an example of the second the leaves of *Epilobium angustifolium*, or of *Salix fragilis*. The phrase, which long since occurred to me, and which I have constantly used in MS., though I know not what claim I can lay to its invention, strikes me as more precise and correct than the term *linear*, which as employed in botanical language is widely different from the idea commonly entertained of a *linear* object, or one whose dimensions approach much nearer at least to the mathematical definition of a *line*, "length without breadth." The addition of "narrowly" or "very narrowly" to the above epithet describes gradations of contraction in width fully as well, if not better than to talk of "narrowly or very narrowly linear," whilst the incorrectness of a glaring pleonasm is avoided.

open fields and pastures, and so closely resembles *H. dubium* or *maculatum* in aspect, that without examination of the stem, leaves, and sepals, it might pass for either of those species, more especially as the latter are occasionally a little obtuse and broader than in the ordinary form of the common St. John's-wort, and the lower leaves are more sparingly dotted, or in some cases nearly imperforate, but the ancipital stem and absence of the pellucid net-work will prevent any possibility of confounding it with *H. dubium* or *maculatum*. This broad-leaved variety would appear to be a mere southern, or at least a mere western form, as Koch, whose observations on the three states of *H. perforatum* under consideration are excellent,* says that it is unknown in Germany, being found only in Switzerland and upper Italy. It is certainly common enough in England, and abounds in some parts of this island and county, but the figures and descriptions of the German, Swedish, Danish, and other floras of central and northern Europe, seem to apply to our third and intermediate variety, by far the most general, with oblong-elliptical leaves both on stem and branches, and which grows indifferently in woods and open situations. This too is the only American form of *H. perforatum*, which grows abundantly in that country, from Canada to Carolina, though supposed to have been originally imported, and lies under the imputation (certainly a most unjust one) of causing ulceration in the backs of cattle that pasture where it is frequent. The *H. intermedium* of Petermann (*Fl. Excurs. Lipsiensis*) agrees well with our broad-leaved variety in every thing but the flower, which the author describes as being much smaller than in *H. perforatum* or *dubium*.

Hypericum humifusum. Frequent in dry fields, and heathy, sandy places in the county and island.

———— *montanum*. This most elegant species is rare and very local in the Isle of Wight, being exclusively confined to the rocky districts of the Undercliff and the south-eastern angle of the coast betwixt Luccombe and Bonchurch. I have no recorded mainland station for it at present.

———— *pulchrum*. This charming and graceful St. John's-wort enlivens abundantly our sandy woods and heaths with the bright array of gold, scarlet, and crimson of its buds and blossoms.

———— *elodes*. Common I believe in most parts of the county in marshy places, as on Petersfield Heath and near Lymington, &c. Abundant in some parts of the island in drains and ditches, but local.

* Deutschland's Flora, Vter. Band. s. 348.

Acer campestre. Woods, thickets, and hedge-rows, everywhere throughout the county and island, most abundantly, constituting a considerable proportion of the ligneous vegetation. Specimens of this neat and pretty little tree, of considerable size and height, are frequent in various parts of Hampshire and the Isle of Wight, but the wood, formerly much esteemed for cabinet work, is now very little sought after.

—— *Pseudo-platanus*. Not unfrequent in woods, thickets, and hedge-rows, and often far enough from habitations, but certainly a naturalized and not aboriginal tree in the south of England, though I suspect it to be indigenous to mountainous situations in the northern counties, where it attains to a greater bulk and stature than it commonly reaches here. We have few fine sycamores in this island, and none of any extraordinary magnitude that I know of in the county. I have seen seedlings of this tree springing up by thousands on the bare sides of our chalk downs, but whether they perish from something uncongenial in the situation, or are browsed down by the sheep, I know not, but they rarely are found to establish themselves in these exposed localities.

Geranium pratense. Very rare, nor have I yet seen Hampshire specimens of this or of the following. Field at Breamore, Miss May. Walworth Road, Andover, Mr. Wm. Whale. Thought to have been found in a field near Ryde, as I hear from my friend Mr. Wm. Wilson Saunders, but I have never met with it in the island.

—— *pyrenaicum*. Widely : Dr. Pulteney in Hamp. Rep.

—— *pusillum*. Fields and waste places, but not common. In several parts of the Isle of Wight, and doubtless also on the mainland, though I have no station to give for the latter.

—— *molle*. Abundant almost everywhere in the county and island, exhibiting considerable difference in the size and colour of the flowers, which vary from bright pink or purple to white or nearly so. A larger, more erect form, with larger flowers, I find occasionally here and across the Solent, which might be mistaken, as I did on first sight, for *G. pyrenaicum*. This, which I unfortunately neglected to examine particularly, is probably identical with a plant not uncommon at the back of the Isle of Wight, according to Mr. J. A. Hanky, closely resembling *G. molle*, but having the carpels neither wrinkled as in that, nor hairy as in *G. pusillum*, and which both that gentleman and Mr. W. W. Saunders conceive may be the *G. pyrenaicum* of Reichenbach, not of Smith, &c. May not the Widley plant be this or my large variety above mentioned, and all three identical

with the *G. molle*, *β. equale*, of Babington's Manual? Another but very small flowered variety, with petals scarcely longer than the calyx, and more deeply cut leaves, approaching *G. pusillum*, and hardly distinguishable from it but on close examination of the stamens and carpels, I have found occasionally in the island, but very rarely.

Geranium rotundifolium. In rough, rocky pastures and thickets about St. Lawrence and Woolverton, Isle of Wight, plentifully, but not noticed elsewhere either in the island or on the mainland so far as I can learn.

———— *dissectum*. Extremely common and often most abundant throughout the Isle of Wight and county generally, on dry bank-hedges and waste places; very rarely the flowers are white with us.

———— *columbinum*. Dry banks, woods, and copses, abundantly in several parts of the Isle of Wight, but not general. Between Andover and Weyhill.

———— *lucidum*. In various parts of the county and Isle of Wight, on dry rocky or chalky banks and walls, but by no means common, though usually plentiful enough where found. Hedge-banks a little way out of Petersfield, towards Stroud Common. This very pretty *Geranium* is said to be extremely rare in the adjoining county of Sussex.

———— *Robertianum*. Everywhere plentiful in damp, shady places, occasionally with white flowers. The var. *β. purpureum* abounds on the flat shore of Stokes Bay, and near the Priory, Isle of Wight.

Erodium cicutarium. Common on dry, sandy ground and banks, particularly along the coast, here and there with white flowers.

†? ——— *moschatum*. Pastures and borders of fields. Found a few years back near Yarmouth, by Mr. Butler, of the Bugle Inn, but since searched for unsuccessfully on the station, which looked like a wild one. I have it, as gathered near the same town, in a list of plants of the island lately received, but have never met with it wild in the county myself, or seen Hampshire specimens.

———— *maritimum*. Dry banks and pastures by the sea in the Isle of Wight, but very rare. Brook Chine. Abundant at Alum Bay, along the descent to the beach, and especially plentiful and luxuriant about the mouths of the rabbit-burrows. I do not know of any mainland Hampshire station for this plant.

‡ *Linum usitatissimum*. Fields: accidentally introduced, scarcely even naturalized. I found it August 8th, 1843, in some plenty in a field opposite Cliff farm, by Shanklin, along with *L. angustifolium*,

but sought it there in vain the following year. About Kenner, by Mr. D. Snooke, but I have never met with it elsewhere or since then in this island. The corymbose disposition of the branches is a good auxiliary character to distinguish this species from *L. angustifolium*, which has the branches singularly lax, irregular and divaricate, with the dissepiments of the capsules hairy.

?*Linum perenne*. Wrickham: Dr. Pulteney in Hamp. Rep. Of this I have not seen specimens, and should fear the next species may have been mistaken for it, though Pulteney was an accurate observer, and mentions the latter as well in his list, from which I quote.

——— *angustifolium*. Extremely common all over the Isle of Wight, in dry soils, sandy fields, on banks, and by road-sides. Abundant, even to profusion, in some places about Ryde, Shanklin, &c. Less frequent, I believe, on the mainland, at least I do not remember to have noticed it in plenty out of the island.

——— *catharticum*. Abundant all over the county and Isle of Wight, in dry fields and on the chalk downs, &c.

Radiola Millegrana. Damp, sandy places, and on heaths, apparently (from its small size) rare in the Isle of Wight.

Oxalis Acetosella. Woods and shady places, not unfrequent throughout the county and island.

‡——— *corniculata*. Naturalized in one or two places in the Isle of Wight, but sparingly, and not extending itself much. At Steephill and at Alverstone Mill, Albert Hambrough, Esq. I could not find it this spring at the latter station.

Euonymus europæus. Extremely common all over the county and island in woods, thickets and hedges. Called in the Isle of Wight skewer or skiver wood, being much sought after for making that implement for the butchers. A variety with smaller, very dark green and shining leaves is frequent in the island.

Rhamnus catharticus. Less general than the last, but still very frequent on mainland, Hants, especially in the interior of the county remote from the sea, and on the chalk. About Southampton. Plentiful about Chilcombe and elsewhere near Winchester. Abundant, almost to profusion, in woods and hedges in and about Appleshaw. Andover, on the road to Weyhill, in plenty. Woods at Bordean, Petersfield, Clanfield, West Meon, East Meon, &c. Decidedly rare in the island, and there exclusively confined to the chalk, and to the interior hills and valleys, nowhere approaching the sea-coast, even where its favourite rock juts out on the shore. The eastern or continental tendency of this shrub is evidenced by its diminishing fre-

quency in proportion as we advance westward. In the south-western counties of England and in Wales it is already rare, and extremely so in Ireland, and in the equally maritime climate of Scotland.

Rhamnus Frangula. In damp and sterile woods, thickets and heathy ground in very many places, and perhaps general over the entire county. Plentiful in woods about Bishop's Waltham, Botley and Fareham. Near Southton. Very abundant in some parts of the Isle of Wight near the coast, as well as inland; being a much more gregarious shrub than the last, it forms a considerable part of the brush or "rice" in the woods, and sometimes attains a height of ten or even twelve feet, and is by no means devoid of beauty. I do not remember ever to have seen it on the chalk, and here it is generally an evidence of a poor, unprofitable, or ill-drained soil.

Ulex europæus. In vast profusion on heaths, commons, and in woods all over the county and island, and which are lighted up by it in April and May with one blaze of golden splendour. It was this plant, and not the broom, as Mr. Gardiner, in his 'Flora of Forfarshire' represents, that incited the immortal Swedish naturalist to the ecstasie genuflexion recorded of him. The latter is a native of Sweden, and Linnæus must have been familiar with it in his tour through Scania, as indeed appears from his mention of it in the 'Itur Scanicum.' Seeds very variable in number, from three or four, to ten or twelve, though usually *about* ten, as Mr. Babington remarks; not all perfected.

— *nanus.* Very common on heaths, &c., flowering in autumn, in the Isle of Wight, and I presume through the county, yet I cannot satisfy myself that it is truly distinct from the foregoing.

Genista tinctoria. Abundant in many parts of the Isle of Wight, the pastures being sometimes quite yellow with it. I have not noticed its degree of frequency in the county at large, but believe it to be generally common. Hayling Island.

— *anglica.* In moory pastures and wet, spongy bogs, not rare in the Isle of Wight. About Southton. On Petersfield Heath and various other parts of the county.

Sarothamnus scoparius. Abundant in woods, copses, and rough, bushy pastures throughout the county and island, often attaining to a large size, ten, twelve, or fourteen feet, with a trunk as thick as the arm. I once picked it with white flowers, in Sandown Bay, Isle of Wight.

Ononis arvensis. Extremely common. A variety with very shaggy stems and leaves grows in considerable plenty on Ryde Down at its

upper end, and is doubtless that mentioned in the Dillenian editions of Ray's Synopsis, tom. ii. p. 332, No. 3.

Ononis antiquorum ? Probably not uncommon, but I have not (as yet) paid much attention to our two assumed species. A spinous form, with very small, narrow and elliptical leaves, and remarkably erect, compact branches, with flowers rather more upright and crowded than usual, I found on a sea-bank, in the marshes between Cosham and Farlington, near Havant, July 28th, and which I suppose is referrible to the present species, if such it be. In that case I have no station recorded for *O. antiquorum* in the Isle of Wight.

‡ *Medicago sativa*. Here and there naturalized in pastures and by way-sides. Persistent in a pasture field by Bonchurch farm for several years past, the remains of some former crop.

—— *lupulina*. Abundant in dry, waste places almost everywhere.

—— *maculata*. Very common, and in some places profusely, in the Isle of Wight, in pastures, waste ground, and even in woods. I am unable to speak of its comparative frequency on the mainland, where it is not rare, at least along the coast.

—— *denticulata*. Very rare? Abundant on the steep banks above Sandown Bay, near the Culver Cliff, a little below the summit or crest of the bank, for many yards. Perhaps not uncommon, but overlooked for its congenerous species.

Melilotus officinalis. Very abundant in woods and on banks in various and distant parts of the Isle of Wight, but not very universal. It covers the banks of slipped clay about Sea View and the Priory, in many places along the shore. I have observed bees attracted to the mellifluous flowers of this plant in great numbers. My reasons for believing the yellow melilot to be biennial and not annual will be found in the 'Phytologist,' vol. ii. p. 330.

†—— *vulgaris*. Occasionally and sporadically in cultivated fields, chiefly amongst clover or lucerne, with which there is little doubt it has been introduced, nor have I seen it apparently wild in any part of the county.

Trifolium medium. Singularly rare, if it has not been overlooked by myself and others, as I suspect, for the universal *T. pratense*. Near the shore by the limekiln, a little to the westward of Cowes, Isle of Wight, Miss G. E. Kilderbee !! In Firestone Copse, at the point of junction of the roads to Ninham and Haven Street, in great plenty and very fine, Dr. T. Bell Salter. Near Netley Abbey, Mr. W. L. Notcutt. The scarlet trefoil, or as it is here called, *Trifolium* (*T. in-*

carnatum), occurs occasionally as a stray from cultivation, but is hardly naturalized.

Trifolium arvense. Sandy fields, but not very common. On Ryde Down. Very abundantly and of most luxuriant growth on the sandy banks of debris at the foot of the cliffs in Sandown Bay, Isle of Wight. At St. Helen's, and a few other places. Extremely abundant on the south beach, Hayling Island, the heads of flowers often subglobose, and the whole plant dwarf, when it is probably the variety of Ray's Synopsis, Dillenian edition, vol. ii. p. 330, to judge from the description, figure, and nearness to the locality given in that work.

—— *striatum*. Sandy fields and pastures not uncommon in the Isle of Wight. It used to be frequent on Ryde Down, which, before that piece of ground was built over, produced the greater number of the rarer species of this genus indigenous to Britain, along with many other interesting plants now extinct, or nearly so, in that locality.

—— *scabrum*. In various parts of the Isle of Wight on sandy and chalky fields, pastures and banks, but not very common. Ryde Down, &c.

—— *glomeratum*. Sandy places, but rare. In several parts of the Isle of Wight. In some plenty with the next on Ryde Down a few years since. Sandown Bay. St. Helen's. Freshwater, near Ly-mington, at Woodside, 1848.

—— *suffocatum*. Sandy pastures by the sea; very rare? Profusely on Ryde Down in 1843, and still to be found there by diligent search, but a great part of the ground on which it grew is now broken up and built upon. Red Cliff, at the extreme south point of the island on which St. Catherine's lighthouse now stands, Mr. G. Kirkpatrick.

—— *subterraneum*. Frequent in the county on dry, short pasture ground. About Southampton. Very common in the Isle of Wight, its long, slender flowers conspicuously whitening the turf in many places. On Ryde Down, &c.

—— *fragiferum*. A plentiful species in rather damp meadows and pastures in most parts of the island, and I believe of the mainland also. I am not prepared to state the comparative frequency of this and of our other trefoils over the latter division of the county, not having directed my attention to the point, or received notices of their occurrence from others. The species belonging to the remaining division of the genus, with yellow flowers, namely, *T. procumbens*, minus and filiforme, are all common weeds of the entire county.

—— ? *ornithopodioides*. Dry banks and pastures, rare? pro-

bably only apparently so, from its small size. On Ryde Down, and a few other places in the Isle of Wight.

Lotus corniculatus. Everywhere most abundant in fields, pastures and on heaths; particularly fine on the sea-banks in Sandown Bay, usually with somewhat fleshy leaves (the var., I suppose, *γ. crassifolius*). Another form, with long, silky hairs on the stems and leaves (the var. *β. villosus*), occurs in several parts of the island in damp pastures and on ditch-banks. The state with filiform, decumbent stems, and narrow, fleshy leaves and stipules (*L. corniculatus*, var. *tenuis*) is not unfrequent in drier places by way-sides, &c., and looks very much like a species. Mr. Borrer suspects this last is at most biennial, if not annual, since he cannot preserve it in his garden, the old plants dying off after perfecting seed, a fact which would go far to establish its claim to distinction.

——— *major*. Common in wet meadows, by ditches, &c.

——— *angustissimus*. Abundantly for at least fifty yards on a bank facing the south, in Stokes Bay, by Gosport, a little to the westward of Anglesey, Miss Jane Garrett!!! Not yet found in the island.

Anthyllis vulneraria. Pastures, but not very common, at least in the Isle of Wight. A very large variety, two feet high, with far larger leaves and paler flowers (the *A. maritima* of Schweigger), grows abundantly on the steep banks at the upper end of Sandown Bay, forming great tufts. The red-flowered variety, *β. Dillenii*, has not been found in this island or county.

Astragalus glycyphyllos. Very rare, at least on the island, where it is confined to three localities, in rough, rocky pasture ground, near Niton, but there most abundant and very fine.

N. B.—*Astragalus hypoglottis*, recorded in 'Botanist's Guide' as found on Carisbrook Castle Hill by Mr. Griffith, certainly does not grow there at present, and I question if it ever did. Mr. Griffith seems to have been a most inaccurate observer, as I shall have occasion to show subsequently, and to have committed strange mistakes in his reports of species.

Vicia hirsuta. Common in corn-fields, woods and pastures. In great profusion on sandy banks near the Culver Cliff, in Sandown Bay, growing by itself in great patches, and of extraordinary size.

——— *tetrasperma*. In similar places with the last, and about equally common, sometimes approaching the following pretty closely, even to rendering distinction difficult.

——— *gracilis*. In cultivated fields, woods and hedges not unfrequent and sometimes very abundant in the Isle of Wight, but uncer-

tain and capricious in its stations. I am still more than half inclined to regard it as a mere variety of the last, finding most of its characters prone to variation, but in deference to the opinions of others I here keep it distinct.

Vicia sylvatica. Woods, very rare? Decidedly so in the Isle of Wight, where this most elegant of our vetches may be seen in Luccombe Copse, by the road-side from Shanklin to Bonchurch, profusely investing the bushes with its festoons of gayest verdure, and long clusters of "pale and azure pencilled flowers:" a spectacle most delightful and refreshing to the eye of a southern botanist. It formerly grew at the entrance to Bonchurch, as I learn from my friend Mr. Curtis, who has figured it from thence, but I cannot find it there now. In a wood near the east turnpike at Appleshaw, Mr. Borrer in Bot. Guide. I find it in the great wood there opposite the church, and also at Redenham House, near the same place, in a wood, abundantly; it is, however, a scarce species in the south of England generally, and I find it difficult to preserve for any length of time in a garden, where for covering arbours it would be most desirable to possess it as a permanent inmate.

——— *Cracca* and *V. sepium* are abundant in woods and hedges all over the county and island.

——— *sativa.* This and its varieties, *V. angustifolia* and *Bobartii*, abound in meadows, fields, and by road-sides, in many parts of the island, particularly on the green sand of the eastern side, as at Sandown, Shanklin, &c.

——— *lathyroides.* In dry, sandy pastures, rare? Banks in Sandown Bay, in considerable plenty, but its chief station on Royal Heath is now destroyed by the late enclosures.

Lathyrus Aphaca. Borders of fields and amongst corn; very rare? Grassy bank in the glebe-field at West Meon, the Miss Sibleys, and where I gathered fine specimens, in company with these ladies, in June last. Not found hitherto in the Isle of Wight.

——— *Nissolia.* By no means rare, and often abundant in certain years both in the island and on the main, but extremely capricious in its times and places of appearance, and hardly possible to preserve in cultivation. On grassy slopes above Sandown Bay I find it not unfrequently, and a few years since it was profuse in the gravelly fields about Benbridge. In woods and thickets about Ryde, &c. About West Meon with *Lathyrus Aphaca* it is very frequent, but, as we have just seen, not constant companions; the Miss Sibleys!!!

†?——— *hirsutus.* Open fields, excessively rare. A single spe-

cimen is in the herbarium of Miss Lovell, who picked it in a field near Brixton or Brightstone, in this island, but could not succeed in finding a second. Perhaps introduced accidentally!

Lathyrus pratensis. Hedges, thickets and damp pastures and meadows most universal and abundant. A variety with very downy stems and leaves I find between Ryde and Binsted.

——— *sylvestris.* Woods and thickets rare. Abundant but very local in several parts of the island; most frequent in East Medina, about Shanklin and Luccomb. Bordean Hanger, near Petersfield, but picked very sparingly, July, 1848. A variety with considerably broader leaves occurs about the cliffs at Shanklin, and is, I doubt not, the *L. latifolius* said to grow on Sandown Beach, by Dr. Pulteney, in the 'Hampshire Repository.'

——— *palustris.* Boggy meadows; very rare. Heath by Botany Bay, Mr. W. L. Notcutt, 1842. Of this I have seen no specimens.

——— *maritimus.* Sandown Beach, Isle of Wight, Dr. Pulteney in Hamp. Rep. Near Cowes, Mr. Marryat in Baxter's 'Genera of Flowering Plants.' Mr. Baxter informed me that Mr. M. found the plant on the sands near Lord Seymour's (Norris) Castle, E. Cowes. A specimen of what appeared to them to be the leaves of this plant was found in June, 1843, by Dr. Martin and Mr. J. A. Hankey, in Sandown Bay, but I have never been fortunate enough to rediscover it in either station. The continual rapid encroachment of the sea on the shore at Sandown and Shanklin is quite sufficient to account for the disappearance of any plants inhabiting the beach, but the species may be reasonably expected to emerge once more into light and life when circumstances shall again favour the germination of the seeds, now probably lying dormant in their pebbly place of sepulture.

Orobis tuberosus. Extremely common in woods, thickets and heathy places in the island and county generally. Of the variety *tenuifolius* I have occasionally picked a specimen in this island, but here, at all events, it seems rather an accidental than a permanent deviation from the typical form.

Ornithopus perpusillus. Frequent on sandy or chalky pastures and banks in the Isle of Wight. Profusely and of large size on sandy banks towards the Culver Cliff, eighteen inches or more in length. About Fareham, Mr. W. L. Notcutt.

Hippocrepis comosa. On dry chalky banks, pastures and downs, very abundantly in many parts of the Isle of Wight. At Ventnor and Bonchurch the close, green sward is radiant with its golden coronets,

blended with the daisy, the bird's-foot trefoil and cowslip, into a natural carpet of the most resplendent colours.

Onobrychis sativa. On banks and chalky slopes in various parts of the county and island, though not very common or always easy to determine whether wild or not from the universality of its cultivation. I believe it, however, to be a genuine native in Hampshire and the south of England, and our chalk downs to be its rightful, undisputed home.

Prunus spinosa. Most universal and abundant in all parts of the Isle of Wight, and I believe of the county, in woods, thickets and bushy places. In some of our stiff clays it covers considerable tracts of ground, to the exclusion of everything else, its densely interwoven branches forming thickets which are absolutely impenetrable by man and all but the smaller quadrupeds and birds, that find a secure retreat for themselves and their young in these thorny fortresses. The fruit or sloes, called here winter keeksies, are abundantly produced on certain trees and totally fail on others, probably from some defect in the reproductive organs: a large majority of the plants are in this barren condition. In this part of England *P. spinosa* appears under some very puzzling aspects, and is linked to the two following by such imperceptible and evanescent degrees of affinity as to defy any specific formula that can be formed to distinguish them, unless in their extremest states of divergence, and not always even then.

——— *insititia*. Woods, hedges and thickets in all parts of the Isle of Wight, very common, but less abundant than the foregoing. A larger, taller and stouter shrub than the last, with a yellowish (often yellowish green or olive) coloured bark, and much larger flowers, that appear with the leaves. Fruit globose, dark blue, as large as a marble, not altogether uneatable when fully ripe, and excellent for tarts and puddings, for which they are collected by the country people. I once brought home a quart or more of these wild bullaces, and had them made into a tart, which was one of the best flavoured and most juicy I ever partook of. Yet plants occur continually in our hedges so exactly intermediate between the bullace and the austere, uneatable sloe, that I am compelled to regard them both as forms of one species, and believe that the solution of the problem is to be sought for in the well-known fact that many plants evince a strong tendency to sport in varieties as the species advance southward, which in more northern latitudes continue true to their primitive or normal type. In other words, that climate spontaneously works that amelioration in vegetables easily susceptible of improvement, which

cultivation artificially effects in the same and others to a more exalted degree of perfection.

†? *Prunus domesticus*. By this name I designate (whether right or wrong I know not) a still larger form of our wild plums which occurs here and there in the Isle of Wight, chiefly in hedge-rows in the enclosed country, and hence perhaps less truly spontaneous than the two preceding. In this the leaves are large, obovate, the peduncles mostly solitary and the fruit still larger than in *P. insititia*, yet certainly not with us at all oblong, but perfectly globose.

‡—— *Padus*. Very rare, and I have no doubt naturalized. In a thicket near St. John's, Ryde, but sparingly, and certainly, I think, introduced. Under the rocks, below Cook's Castle, between Shanklin and Appuldurcombe in some plenty, but scarcely indigenous. I have not heard of its occurrence elsewhere in the island or county, though as it is found wild in some parts of Kent, it may be eventually discovered with us in the same condition.

—— *Avium*. Common everywhere, and in some parts of the Isle of Wight abundant in woods and copses, attaining, occasionally, to a large size and height, and making a fine appearance in our woods when in blossom in April and May. In general the fruit with us is small, red, bitter and uneatable (red cherry), but in the sandy soil at Bordwood, Isle of Wight, and about Southampton, are trees which produce black, sweet and excellently flavoured fruit (black cherry, black heart), which is sold in the market. The two varieties are perfectly distinguishable by their flowers and foliage. I am sorry to see this truly distinct and well-marked species degraded from its rank in the 'London Catalogue of British Plants,' and absolutely astonished to find it therein set down as a variety of *P. Cerasus*! Had the case been reversed, my surprise would have been less, but to find the greater and more widely diffused of our wild cherries merged into the smaller and far rarer, does, I confess, puzzle me exceedingly to account for.

—— *Cerasus*. In hedges, thickets, the sunny borders of woods and glades, and on steep banks, not common, though abundant in several spots in the Isle of Wight, and apparently quite indigenous. It is particularly fond of growing on slopes, which it sometimes covers with a thicket of bushes eight, ten, or twelve feet in height. Such a thicket may be seen on a hill-side, surrounded by cornfields, about half a mile west of Niton church, and along the crests of high, chalky or sandy banks in various parts of the island. The fruit,

which is red and acid, is but sparingly perfected in the wild state. A truly distinct and unmistakable species.

Spiræa Filipendula. Not rare, I have reason to believe, in mainland, Hants. On Longwood Warren, near Winton. Barton Ashes, Droxford, Dr. Pulteney, in Hamp. Rep. Freefolk, Rev. G. F. Dawson! Near Andover, Mr. Wm. Whale. Plentiful on downs between Crawley and Barton Stacey, Dr. A. D. White. Extremely rare in the Isle of Wight. On the downs above Steephill, Dr. Martin. I have looked there for it in vain. In the great plantation on the down behind Westover in one or two spots, but not abundantly.

Geum rivale. Low, wet meadows and moist woods, apparently frequent and widely dispersed over the mainland part of the county, but totally failing in the Isle of Wight, though abounding, as it does, with situations perfectly analogous to its usual places of growth. Moist meadows by Netley Abbey and at Mansbridge, near Southampton. Andover, Mr. Borrer, in Bot. Guide, and Mr. Wm. Whale. Shawford, Miss G. E. Kilderbee. Banks of streams, Breamore, near Fordingbridge, Miss May. Stoke Common, Mr. Forder! Very abundantly at Bishopstoke, in a water meadow close to the road between the railway station and Fair Oak, Miss L. S. Minchin. Common in water meadows about Winton, Dr. A. D. White!!! Plentiful in a meadow near Bishop's Waltham, in which *Fritillaria Meleagris* grows, directly opposite Mr. Jonas's mill.

Poterium Sanguisorba. In dry, chalky pastures and on downs most abundantly over the Isle of Wight, and I believe equally plentiful in similar soil and situations throughout the county.

N. B. — *Sanguisorba officinalis* has been reported to me as growing in two places within the county, but I have seen no specimens from either station. In one of these I have every reason to believe that the *Poterium* was mistaken or intended for it, whilst considerable doubt and hesitation exist in the mind of my informant as to the correctness of his observations in the other locality.

Of the genus *Potentilla* the county and island possess in abundance all the lowland and south-country species, excepting *P. argentea* and the submontane *P. verna*. The first may reasonably be looked for in sandy or gravelly soils; the second with less probability of success on the downs in the northern part of Hampshire. *Alchemilla vulgaris* is another desideratum for our county flora.

Comarum palustre. In spongy, peaty bogs and drains, frequent in the Isle of Wight and county generally.

Fragaria vesca. Woods, thickets and on hedge-banks very common everywhere.

†?—— *elatio*r? I observed some years ago a *Fragaria* which is probably this species, growing very abundantly in Stratton Park, along the carriage-drive to the house, but had at the time no opportunity of examining it more closely. I mention it here to call attention to the plant and its locality, which latter, from what I recollect of it, was not such as would entitle the former to be pronounced indigenous, though perhaps few English stations for the hautboy strawberry are much less exceptionable.

For the subjoined list of Hampshire brambles I am indebted to the kindness of my friend Dr. T. Bell Salter, who it is well known has devoted much attention to this most difficult and perplexing tribe.

I freely confess that the uncertainty which hangs over the determination of the species, and the endless diversity of opinion which prevails as to their number, names and characters, quite dishearten me from attempting their investigation; the more so, as I feel persuaded that to enter on their examination with any chance of ultimate success, would require a much greater sacrifice of time to be exclusively given up to the task, than I am either able or willing to devote to the attainment of an end, the successful issue of which, after all labour bestowed, is very problematical. Seeing that some of our most acute botanists, after years of close and careful study of the brambles, still doubt, hesitate and dispute about them, I am sensible how ineffectual would be any endeavours of mine to aid in the adjustment of so vexed and complicated a question.

Rubus Idæus. In thickets and moist woods not very frequently or abundantly, but pretty generally spread over the Isle of Wight. I have not observed it on the mainland, but have no doubt of its being about equally frequent. The variety *trifoliatus*, and that with white fruit, less common. Westwood, near West Meon, Miss L. Sibley !!! Near Clanfield, W. A. B. Abundant on Oxenbourne Down, near Petersfield, springing up where the furze has been burnt, and elsewhere in that vicinity, W. A. B.

—— *sub erectus.* Observed only in damp woods in the Isle of Wight, near Shanklin, and generally of the form *trifoliatus*. It sometimes attains the height of eight or nine feet, with fruit of a bright red. Leighton's *fissus* certainly does not differ from this.

—— *plicatus.* In bogs and damp woods in several parts of the Isle of Wight and the mainland.

—— *Salteri.* The only Hampshire station I yet know for this

plant is the original one in Apse Castle Wood, but I have seen specimens from other counties. The plant maintains its characters when removed into gardens.

Rubus tenuis. Not frequent. At Selbourne and in the Isle of Wight, near Swainston.

——— *leucostachys*. This species, with some others not till lately well distinguished, is too common for recording its several habitats. I mention it, however, in order to refer to the variety *vestitus*, likewise of frequent occurrence in almost every wood, alike on the mainland and in the island. In the neighbourhood in which *leucostachys* grows, *vestitus* is found in the interior, whilst at the margin of the woods every gradation may be seen betwixt them.

——— *sylvaticus*. In hedges, not common, in the New Forest and Isle of Wight.

——— *Borreri*. On sandy heaths in the Isle of Wight, very rare.

——— *carpinifolius*. In hedges on a sandy soil. On the mainland, near Selbourne, &c. In the Isle of Wight it abounds in the green-sand district of the south-east of the island. In woods it assumes the form of var. *roseus*.

——— *macrophyllus*. In moist, not boggy woods, probably generally diffused. I have noticed it near Selbourne, and in several parts of the island.

——— *Babingtonii*. Rare. In a hedge-row near Selbourne.

——— *rudis*. In hedges frequently. About Alton and Gosport, and in the Isle of Wight. The form? *Reichenbachii* rare at Selbourne and near Ryde.

——— *Radula*. Of unfrequent occurrence. The typical form and the variety *Lingua* on the heaths about Bourne Mouth, and the variety *Hystrix* in woods in the Isle of Wight, and probably in those of the mainland also.

——— *glandulosus*. Rare, in damp hedges. I believe Bellardi's form has not been found in the south of England. The more frequent in this county is the variety *Lejeunii*, but this is very local, having been observed in several sites around Selbourne, and one or two in the island. The variety *rosaceus* I have only seen in Selbourne Lith.

——— *Wahlbergii*. In hedges very local, chiefly in the N. E. of the Isle of Wight.

——— *nemosus*. In hedges. A rare plant in Hampshire. It grows in one small district of the Isle of Wight. This species and the former are very apt to lose their fruit immediately after flowering.

Rubus cæsius. By no means a common plant in Hampshire. Very local in the island, the var. *pseudo-cæsius* being here the commonest form. In Swainston Park the ground is in some parts covered with a mat of dewberries, W. A. B.

Rosa spinosissima. Abundant in various parts of the county and Isle of Wight, on heaths and on sandy sea-shores, pastures and hedge-banks. About Boldre and elsewhere in the New Forest, &c.

— *tomentosa*. Frequent in the county and island, in woods and hedges.

— *micrantha*. In various parts of the Isle of Wight, by no means uncommon, and probably on the mainland, but I know nothing of its distribution in the east division of the county.

— *rubiginosa*. Far less frequent with us than the last, and indeed apparently quite rare, at least in the Isle of Wight. Near Yarmouth and Calbourne, but sparingly in both places, though truly wild.

— *canina*. Abundant everywhere in some one or other of its multitudinous forms. The var. *β. sarmentacea* is one of the most common of these in the island.

— *arvensis*. Very plentiful in a variety of places in the Isle of Wight, chiefly in woods and thickets on the clay. On the mainland I believe it to be also generally distributed.

Cratægus Oxyacantha. Profusely everywhere in woods, hedges, and thickets throughout the entire county and island, often reaching, as in the New Forest, to a great size and height. The variety with one of the styles alone developed, *C. monogyna*, *Jacq.*, is by far the commoner form with us, if not the only one. Another variety, with larger, more oblong fruit, and a third with woolly fruit and peduncles, occur in this island; the latter, which is not uncommon, and I suppose is the *C. eriocarpa*, *Lindl.*, was first pointed out to me by my friend Mr. W. W. Saunders. The fruit of the hawthorn is called hoghails or haghails in this island.

†? *Pyrus communis*. Occasionally in woods and thickets as a very spiny torulose shrub or small tree, but not at all common, and mostly sporadical, seldom perfecting fruit. More frequently it occurs in hedge-rows, but in other places it has a perfectly wild appearance; yet from the paucity and sterility of the individuals, I am inclined to think the specimens found in our woods may owe their origin to the seeds of the cultivated pear dropped by birds.

— *Malus*. In woods, copses, thickets, and hedges throughout the county and island, truly and abundantly indigenous.

— *Aucuparia*. In (mostly) hilly or rocky, but sometimes in

flat woods and copses; rare. In several parts of the Isle of Wight, but so sparingly in the different stations, that I was long disposed to regard it as merely naturalized, till I found it to be quite frequent in the woods near Bishop's Waltham, Wickham, Fareham and Botley. In our Hampshire woods it is never to be seen otherwise than as a small tree of very slender proportions, but flowering and fruiting at an early age, preferring damp, cool situations by streams.

Pyrus Aria. Extremely abundant in woods and copses, associated with the beech in most parts of the mainland of Hants, where that tree abounds, often constituting a large proportion of the brush or underwood on the sloping faces of the chalk-banks and hills. Profusely about Petersfield, on Butser Hill, Clanfield, Bishop's Waltham. Not rare in the Isle of Wight, in some woods of which it abounds, but rather locally. There is a fine old tree of it in Youngwood's Copse, near Newchurch, which I measured, in February, 1846, and found to be 3 ft. $8\frac{3}{4}$ inches in girth at $3\frac{1}{2}$ ft. from the ground, though not above 16 or 17 feet in height, with a rounded, spreading head, dividing at 36 inches from the earth into several stout arms; the large reddish or orange-coloured fruit not unpalatable. Called white rice or white leaf, sometimes whip crop (from its use in making whip-handles) in the Isle of Wight and county generally.

——— *terminalis.* In woods, copses, and hedges in the lower flat country on the eocene or freshwater formation; not, so far as I have observed, on the chalk, greensand, or any rock accompanying the latter. Plentiful in many parts of the Isle of Wight, north of the great central chalk range, as all along the shore westward from Ryde and along the Wootton River, also in various places along the coast of West Medina, between Cowes and Yarmouth. In woods near Fernhill it forms a large portion of the rice or copse wood, and being cut as such is seldom seen but as a shrub, whilst in other parts of the island it has been permitted to reach its natural dimensions. A tree in Quarr Copse, at Binstead, the largest I know of in the county, I found to measure, a few years ago, 5 ft. 6 inches in girth at 3 feet from the ground; the height of its fine round-topped and spreading head may be about 30 or 35 feet. The species is here called service-tree, and the brown dotted fruit, which ripens in October and November, is sold in Ryde, tied up in small bunches, to children; the flavour being much like that of medlars, and very agreeably acid. In Sussex the berries are called checquers. On the mainland I have observed it about Lymington, but not as yet in the interior of Hampshire. The tree is well worthy of general cultivation, both for its

fruit and the beautiful dark green glossy aspect of its large and singularly shaped leaves, that remind one of those of certain American oaks, particularly the trilobate variety of *Quercus falcata*, and, like them, fade to a rich purple in autumn. From similarity of name the true service-tree (*P. domestica*) has most erroneously been given as a native of the Isle of Wight in the 'Botanist's Guide,' and the mistake copied into subsequent publications.

W. A. BROMFIELD.

[To be continued].

The following species and varieties were inadvertently omitted from the former part of this catalogue, from the haste with which it was prepared for the press:—

Ranunculus hederaceus. Pools, ditches, and drains in the Isle of Wight, not at all unfrequent, but much less common than *R. aquatilis*.

————— *circinatus*. Marsh ditches in Brading Harbour, Isle of Wight.

————— *fluitans*? A plant which I considered as the var. *pantothrix* of *R. aquatilis*, and which I presume to be the above, now considered (and perhaps justly) as a species, grows in several pools in this island, but must receive farther attention before I can confidently assert its identity with the *R. fluitans* of authors.

————— *auricomus*. Not a common Hampshire species, though abundant enough in certain places. Plentiful in several parts of the Isle of Wight, but restricted to the clay of the eocene deposit. I have never remarked it on the chalk or greensand.

Aquilegia vulgaris, add, In quantity in the wood facing the church at Appleshaw, Mr. Wm. Whale!!!

Papaver Rhœas. A specimen of a beautiful variety with the flower pure white, I picked this summer in a wheat-field above Sandown Bay.

————— *hybridum*, add, Andover, Mr. Wm. Whale!! Most likely not rare in the county, but apt to be overlooked, as the flowers expand only in the early part of the day and fall before noon.

————— *Argemone*. I find a variety of this, which abounds on the green sandstone in fields about Shanklin and Sandown, with petals deeply and prettily fringed or laciniate.

Fumaria Vaillantii. Andover, Mr. Wm. Whale!! Babington says this is common, but I have not met with it here, nor does Mr. Borrer find it in Sussex.

‡ *Alyssum calycinum*, add, A few specimens picked in a clover-

field by the new parsonage house at Sandown, Isle of Wight, by Miss Lovell, 1848, doubtless introduced, but may likely become naturalized hereafter!

Nasturtium terrestre. Wet places in the Isle of Wight, rare. In several parts of Sandown Level. Pond at Hardingshoot Farm, abundant.

Silene maritima, add, Abundant on the sea-shore about Lymington, and on Hayling island.

——— *nutans*, add, Abundant, if I recollect rightly, on the flat shore of Stokes Bay.

Spergula arvensis. Profusely in cultivated fields. I have remarked this plant to possess a most repulsive stercoraceous odour, not commonly if at all noticed in books.

Stellaria media, var. *apetala*. On the sandy flat below St. Helen's, Isle of Wight.

W. A. BROMFIELD.

Eastmount House, Ryde,
Isle of Wight, August 1, 1848.

Notice of Juncus diffusus in Leicestershire.

By the Rev. ANDREW BLOXAM, M.A.

To the Rev. W. H. Coleman is due the credit of the discovery of the above-named species in Leicestershire.

He finds it in several localities in the neighbourhood of Ashby-de-la-Zouch, and it having been pointed out to me by him in one of these, I have been enabled to recognize it in my own immediate neighbourhood, where it has been verified by him since. I find it in small quantities growing amongst *Juncus glaucus*, in the road between Twycross and Snarestone, by the side of Gopsal Wood, commencing about a quarter of a mile out of Twycross. It is also found in great abundance in a field adjoining the Ashby canal, at the back of Congerstone, a village about two miles distant from Twycross. It may probably be more universally diffused, but hitherto generally overlooked by botanists, as was the case with myself, from its presenting, at first sight, so few prominent marks of distinction from other species.

ANDREW BLOXAM.

August 9, 1848.

Notes on the Periods of Flowering of Wild Plants.

By GEORGE LAWSON, Esq.

THIS is an interesting subject, brought before the attention of your readers by Mr. Lees and Mr. Snooke in your last number, and one to which additional attention ought undoubtedly to be directed; but I fear much that we must wait a little for the lulling of the *species mania* before the subject receives that attention from the authors of Floras which its importance demands. The knowledge and discrimination of species is a most important matter, but it should not be looked to as the grand *end* of Botany, and when it excludes the investigation of equally important departments of the science, it then assumes a false importance to which it is not entitled.

The periods of the flowering of plants in different parts of Britain must from obvious causes be very various; but were attention to be directed to the subject by botanists throughout various parts of the country, the accumulation of facts thus collected would no doubt modify very considerably the flowering-periods stated in the different Floras, at least in many places.

I have been in the habit for a few years past of observing the dates of the appearance of various flowers, more particularly in the early part of the season, and the following notes are the results of a number of my lists for different years being put together, and the average dates struck.

February 20. Petasites vulgaris first in flower.

March 9. Draba verna in flower. In 1848 it was so late as the 25th of March before I observed the Draba, but from its appearance it had evidently been in flower long before that date.

March 14. Petasites vulgaris in full flower.

March 15. Ranunculus Ficaria, Chrysosplenium oppositifolium and Mercurialis perennis in fl. The Ficaria and Chrysosplenium occasionally begin to produce stray flowers very early in mild winters.

March 20. Primula vulgaris in fl.* Viola odorata and Veronica hederifolia in fl.

March 24. Tussilago Farfara in fl.

March 30. Viola hirta in fl.

* I may remark that we have not primroses flowering promiscuously throughout the winter in Scotland, as seems to be the case in England. An exception to this rule may, however, be noted in the case of plants on the coast banks exposed to the maritime breeze, which occasionally produce an early flower.

April 1. Tussilago Farfara in full fl. Primula veris in fl.

April 20. Saxifraga granulata in fl.

May 1. Potentilla Fragariastrum, Oxalis Acetosella and Glechoma hederacea about full fl.

May 2. Prunus spinosa, Veronica chamædrys and Fragaria vesca in fl.

May 3. Potentilla verna* and Geum urbanum in fl.

May 4. Primula veris and Viola hirta in full fl.

May 6. Doronicum Pardalianches in fl. Caltha palustris in full fl.

May 9. Geum rivale and Galium cruciatum in fl.

May 14. Anthoxanthum odoratum in fl.

May 15. Luzula sylvatica in fl.

May 21. Viola lutea in fl. (Perhaps it should be earlier).

Rosa canina generally appears in flower about the second week of June or earlier. It was the 17th of June before I observed it *this* season, but it had probably been in flower a week before that time.

I will not proceed further with my notes, as by the end of May my journal generally declines much every year, partly from the circumstance of the busy collecting season then beginning, and partly from the *first appearance* of many plants not being so easily noticed in consequence of the luxuriance of surrounding vegetation. In the above notes it will be understood that the *first flowering* is meant in all cases where the fact is not stated to be otherwise.

GEORGE LAWSON.

Dundee, August 12, 1848.

On the Occurrence of Tulipa sylvestris in Fifeshire.

By GEORGE LAWSON, Esq.

I BEG to record the occurrence of Tulipa sylvestris in several large patches under trees near to the ruins of Pitcullo Castle in the county of Fife, where I first observed it in the spring of 1847. It does not seem to produce flowers at that place (as I believe is often the case with this plant in other situations), and at the time I first found it I was not altogether certain that it really was the Tulipa, being told by a person living near the place that the plant "produced blue flowers

* Probably the Potentilla verna generally flowers earlier in this district than the date under which I have given it, but I possess no evidence to show that fact.

late in the season," and therefore I did not include it in my list of Fife plants published in a late number of the 'Phytologist.' I have since, however, satisfied myself as to the plant.

The proximity of this station to the castle-ruins renders it very doubtful whether the plant may be indigenous, but it is thoroughly naturalized at any rate, and therefore demands our attention.

GEORGE LAWSON.

Dundee, August 12, 1848.

Note on the Variety of Primula noticed at page 128.

By GEORGE LAWSON, Esq.

THE variety of *Primula vulgaris* mentioned by Mr. Collins at p. 128 of the present volume of the 'Phytologist,' is by no means rare in the cottage gardens of this district, being much cultivated in the flower-border as a curiosity.

GEORGE LAWSON.

Dundee, August 12, 1848.

Remarks on the Naturalization of Plants in Britain.

By GEORGE LAWSON, Esq.

THERE was a time when the soil of Britain was not touched by spade or plough, and when its flora was in a state of natural purity, unaffected and unchanged by the commerce or operations of mankind. When cultivation began, however, and was gradually extended, and the nature of the soil changed, then in like proportion would the character of the flora change. Many of the aboriginal inhabitants of our primeval forests would decrease in numbers, and some of the rarer species that were confined to a small area might be exterminated altogether. In the place of these, other plants to which the changed conditions of the soil were suitable, would spring up from the seeds carried there by mankind and other causes; and thus would take place a change in our country's flora, of a real, and not of an artificial kind. Perhaps there are not many (if there indeed be any) of the common annuals of cultivated grounds but have had their origin as British plants in this manner.

Of late years various plants of exotic origin have been reported as

accessions to our British flora, some of these of the class of annuals before referred to, which would be ready again to quit the flora in the event of a cessation of cultivation, and others of a more permanent caste, which have likewise been introduced by the agency of mankind, but which have established themselves amongst the real indigenous vegetation of the land, and, as has been remarked, now bid defiance to all efforts at extermination. The plants of the two classes I refer to are alike dealt little with by botanists; and whenever any person reports the occurrence of such a plant in any part of this country, he is sure to be denounced as one desiring to attach too much importance to his observations, and it is of no avail in warding off such a denouncement, that the observer has the candour to express his conviction that the plant has been introduced in the manner referred to. This should not be the case; and it *would* not be the case were botanists to give that attention which is due to naturalized species; but it is the present fashion for botanists capriciously to discard all species that cannot be proven to be really *indigenous* to the country. If we do not begin to care something for *naturalized* species, we shall by and by only have to study the flora of Britain *as it once existed*, which has vanished away like the baseless fabric of a vision, leaving but a wreck behind, which owes its rescue to the stone tablets of Geology.

Although general in my condemnation of the way in which naturalized aliens are treated, I am aware that there *are* botanists who do attach importance to these interesting plants, and I am very glad to see that Mr. Watson introduces these plants into his important work the 'Cybele Britannica,' although I could have wished that they should have had importance with him sufficient to induce his recording the geographical distribution (in this country) of such as are thoroughly naturalized.

My remarks on the present occasion have been drawn forth by a paper, published in your August number, by Mr. Woodward (Phytol. iii. 201), purporting to interpret the terms *native*, *naturalized*, and *imperfectly naturalized*, the publication of which seems only calculated to mystify and confuse what was clear enough before.

Passing over the most considerable portion of Mr. Woodward's paper, we come to the remark:—"Buckwheat, maize, hemp, and Solanum tuberosum would be a grand addition to the British Flora, quite on a par with the Eschscholtzia, Impatiens, Mimuli, and Martagon lilies, which are registered as growing for a season on some lonely rubbish-heap." Now, Mr. Woodward's paper is in many

parts so vague, and so much beyond my limited comprehension, that I find it necessary to appeal to the judgment of the candid reader whether I interpret rightly the meaning of the above quotation. I understand, then, Mr. Woodward to mean, amongst other things, that it is a great error to *suppose* the *Impatiens* and *Mimulus* to be naturalized plants, seeing that the four exotics he first enumerates are "on a par" with them, and farther, that he means to say that the *Impatiens* and *Mimulus* have (in common with others) been *only* found "growing for a season on some lonely rubbish-heap."

On reference to several works I find that the *Impatiens Noli-metangere* grew wild in Britain in Ray's time. Ray died in 1705, or within a year of that time, if I recollect rightly, so that the plant must have been known as a wild plant for at least 140 years, which is no mean claim to entitle it to rank as a naturalized plant, and it was really too bad of Mr. Woodward to stigmatize it as "growing for a season on some lonely rubbish-heap."

With regard to the *Mimulus luteus*, allow me to cite the following localities where the plant has been found more or less abundantly in a naturalized state in this country.

Ditch-bank below Dudhope Barracks, Dundee. 1815.* The station has been subsequently destroyed by the erection of buildings on the ground the plant occupied. George Palmer.*

Side of Invergowrie burn. 1824, or earlier.† W. Jackson, Sen. (Phytol. ii. 421).

Boggy margin of a mountain rill, not more than a mile or two from Abergavenny. 1824. Rev. W. T. Bree (Phytol. ii. 420).

Near Dun Mill, situated near Brechin road. 1843. A. Kerr (Phytol. iii. 224).

Near Largs. 1845. Professor Balfour (Phytol. ii. 320).

Banks of the Forth, rather less than a quarter of a mile above the bridge at Stirling. 1845. F. Townsend (Phytol. ii. 421).

Margin of the Dighty, at Strathmartin, Forfarshire. 1845. G. Lawson (Phytol. ii. 389).

Banks of the Tay, a little below the ruins of Kinclaven Castle, at the junction of the Tay and Islay. 1845. W. Jackson, Jun. (Phytol. ii. 421).

Plentiful at a burn side, about a hundred yards S.W. from Castle

* The years noted are those in which the stations were *first* discovered: the names are those of the original discoverers, so far as known.

† Mr. Palmer says probably 1813, 14 or 15.

Huntly garden, Perthshire ; likewise at two ditches about a mile S.E. from that place. 1846. James Chalmers.

River side near Perth. 1847. John Sime.

Muir below the bridge of Dun, near Brechin. 1848. W. Anderson (Phytol. iii. 224).

Ditch near Brechin Castle, Forfarshire. 1848. W. Anderson and G. Lawson.

Ceres, Fifeshire. 1848. John Sime.

Rather abundant on the banks of the Esk, near Kinnaird. John Laing (Forfarshire Flora, 141).

Fifeshire. Rev. John Anderson, D.D.

A glance at the above will satisfactorily show that the *Mimulus* is not indeed confined to 'a solitary rubbish-heap,' but that it has very strong claims to be classed as a naturalized species in this country, and I am very desirous to see it, and many other plants equally well naturalized, regularly received as such in our Floras. At any rate I may be allowed to express a hope that Mr. Woodward will keep the above facts in view when he may again have occasion to write about *Mimuli*.

I may be allowed to make a remark or two upon the Invergowrie station, noted above, for the *Mimulus*. I visited that station in June last, and found the plant fully as luxuriant and in as great abundance as in former years.* The author of the 'Forfarshire Flora' states (p. 140) that he found the plant at this station in 1830 ; that it was in cultivation at the garden of Gray twenty years before [the date of the Flora], say in 1827 : hence he concludes that the plant is an escape from that garden. But the plant was recorded in the 'Phytologist' two years and a half ago as having existed "more than twenty-two years before" that time, so that it could not be an escape from the garden referred to. In showing, however, that the *Mimulus* is not there a garden escape, I am not actuated by any desire to make out a case for its nativity ; and it gives me pleasure at the same time to be able to make the readers of the 'Phytologist' aware of its real origin at Invergowrie. For this information I am indebted to my esteemed friend Mr. George Palmer, a most genuine admirer and student of Nature, who tells me that the *Mimulus* was introduced at Invergowrie, and likewise at the Dudhope station, in some one or other of the years 1813, 14 or 15, by a Mr. Lennox (now deceased) who was an

* I shall be glad to supply specimens, showing the luxuriance of the plant, to any of your readers who may feel interested and desire them.

ardent admirer and cultivator of flowers in Dundee. After its introduction by Mr. Lennox, it extended itself considerably and became firmly established, although it has since been destroyed at one of the stations, viz., the Dudhope station, as before mentioned, in consequence of improvements. Although the origin of the Invergowrie *Mimulus* is thus clearly shown, and every doubt set aside as to its mode of introduction, by which it is seen that it owes its original existence entirely to mankind, yet I am not the more prepared on that account to consent to its being discarded from our list of introduced species; for it does not now by any means depend upon mankind in the least degree for the maintaining its existence, being quite *naturalized*, even in defiance of the ambiguous Woodwardian definition of the term.

Regarding *Eschscholtzia crocea*, if Mr. Woodward means, in the sentence I have quoted, to insinuate that I endeavoured to get that plant pushed into notice *as a native*, I would beg to direct his attention to p. 136 of the present volume of the 'Phytologist,' where I remark in regard to it and the *Eutoca*, in the very same paragraph as I mention their occurrence, "These have undoubtedly no claims to be considered as natives." Perhaps, however, some one else (at whom Mr. Woodward's significant hint may be levelled) has taken the *Eschscholtzia* by the hand, that I am not aware of.

As I am at present writing on the subject of naturalization, I may mention the fact that there is every probability of the *Carduus Marianus* disappearing from the Monifieth station, near this place, where it has only been naturalized, although I believe it is considered as indigenous enough by some local botanists. I visited the place about a fortnight ago, and found that it had totally disappeared from the pasture-ground where it used to grow most abundantly, and is now limited to two very stunted and unhealthy plants, which are confined to the foot of the fence on the north side of the road, and opposite from the old station. Its disappearance is no doubt mainly caused by the turf becoming too firm to allow of its growth, it being a plant that loves loose soil.

I likewise visited the Perthshire station for the rare and interesting *Reseda lutea* in June last, which is, I believe, allowed by botanists to be an indigenous plant. It was kindly pointed out to me by my friend Mr. David Gorrie, and I observed that the rocks where it grows are beginning to be covered by vegetation of a more permanent character, which will no doubt gradually displace the *Reseda* until it is completely exterminated, unless some rural operations

again uncover a portion of the rocks, and form a proper place for its growth. The whole of the Reseda is already collected into a little corner, although I believe it used to be scattered over the rocks, probably most so when they had been but recently left by the quarryman's hammer. Here is a change taking place the reverse of that mentioned in my preliminary remarks.

GEORGE LAWSON.

Dundee, August 12, 1848.

[I confess myself fully as much mystified as Mr. Lawson by Mr. Woodward's paper, but I believe Mr. Woodward has been residing for many years in a remote part of the country, probably without the leisure or inclination to keep up his botanical reading. In connexion with the brief passage Mr. Lawson has cited, I beg to call Mr. Woodward's attention to the following records:—

"Impatiens fulva. At whatever period introduced, this plant is now so thoroughly naturalized, that it would be pedantry any longer to refuse it that place in the English Flora, which has been accorded on less strong grounds to many plants originally introduced from abroad. For many miles by the side of the Wey, both above and below Guildford, it is as abundant as the commonest river-side plants, the *Lythrum Salicaria* or *Epilobium hirsutum*; and my friend Mr. Henry Cole informs me that it is found in various places by the same river all the way to its junction with the Thames. It is equally abundant on the banks of the Tillingbourne, that beautiful tributary of the Wey; especially at Chilworth, where it grows in boundless profusion: and near Albury, where I saw it for the first time in 1822." — *J. S. Mill*, *Phytol.* i. 40.

"Lilium Martagon. This plant occurs in tolerable plenty near the village of Sampford, in this county [Essex], on the road from Great Bardfield to Walden. This locality was pointed out to me last May, by my relative Mr. R. M. Smith, of Great Bardfield, who has known of it for above twenty years. The spot is a high bank, sprinkled with low bushes, on the side of a lane leading from the village eastward to some unexplored part of the county. From the situation I cannot at all suppose that the plant can be an escape from any garden. When I visited the spot there were a considerable number of plants, chiefly growing on the outsides of the clumps of bushes, but sometimes quite out in the grass. I do not see any mention of this locality in Ray's list of the rare plants of Essex, in Camden's *Britannia*, edit. 1695. — *Edward Doubleday*; *Epping*, August 12, 1841, *Phytol.* i. 62.

"Lilium Martagon. I think I never shall forget the extreme pleasure I experienced when, in 1826, I first saw this beautiful plant growing in a little coppice to the right of the lane leading from Mickleham to Headly, in Surrey. The coppice was overshadowed by oak trees of considerable size, and the underwood had been cut during the previous year, so that the tall racemes of the lily stood up nobly and conspicuously above the brushwood, and it would have been difficult for any passing observer not to have noticed them.—*Edward Newman; August 13, 1841.*

"[At the end of June, 1840, in a delightful excursion which we believe some of the party will not soon forget, we had the gratification of seeing *Lilium Martagon* growing in the greatest profusion in the station last mentioned. In some parts of the coppice the plants were so crowded that the flowers produced a perfect blaze of the richest colour among the young trees.—*Ed.*]" *Phytol. i. 62.*

"Lilium Martagon. In addition to your stations for *Lilium Martagon*, I may mention Ash, near Wrotham, Kent, where it grows plentifully in a very wild situation on an estate belonging to Mr. Gladdish.—*N. B. Ward; Wellclose Square, September 1, 1841.*" *Phytol. i. 76.*

After careful inquiry respecting the woods or copses in which *Lilium Martagon* has been found, I have ascertained that no record exists in either instance of the planting of such woods or copses: it may therefore be supposed that *these* are of considerable antiquity, and as the roots of the lily are so deep in the earth, and so protected by a net-work of the tough roots of oak, hazel, maple, &c., as almost to preclude the possibility of getting them out entire, it may be fairly assumed that *they* also are denizens of some antiquity. It is in direct opposition to well-established facts to treat such plants as the temporary occupants of "some lonely rubbish heap;" such is not the locality in which they are recorded as occurring.—*Edward Newman*].

On the Occurrence of Botrychium Lunaria in New Localities.

By the Rev. W. T. BREE, M.A.

MR. BLOXAM records the fact (*Phytol. iii. 183*) of his having found *Botrychium Lunaria* this summer for the first time near his residence in Leicestershire. Now I can fancy that my friend, pleased, as no doubt he must have been, at the discovery of a new locality for so in-

teresting a species, might yet be a little out of conceit with his own well-known botanical sharp-sightedness for having, as he supposes, *overlooked* for ten years a plant which all the time had been growing close under his nose. If so, it may be some consolation to him to learn that other botanists also are sometimes liable to commit similar, and indeed much greater oversights. I will tell him what happened to myself. My first acquaintance with that prince of British Ranunculi, *R. Lingua*, in a perfectly wild state, was on the occasion of a visit to the fens at Whittlesea Mere. There the plant grew in great abundance, luxuriance and beauty, rearing its ample, bright blossoms some feet above the surface of the ground or water, to the no small satisfaction of a botanist who might see it for the first time in its native state. I was not then aware that *Ranunculus Lingua* was even a Warwickshire plant; however, the very next summer I found an old, over-grown pit, in this parish (Allesley), full of the *Ranunculus*! and in this situation I have not the least doubt it had grown time out of mind; for the pit was one of those neglected spots, which, in spite of inclosures and all agricultural improvements, had retained its primitive character unchanged and unmolested by "man's meddling."

But to return now to the *Botrychium*: my friend and neighbour, the Rev. W. Thickins, informed me a few weeks ago that he had found this fern near Coleshill Pool, in the earlier part of this summer, as since recorded by him in the '*Phytologist*' (*Phytol.* iii. 222). Guided by his direction, I lately visited the spot, and accordingly found the *Botrychium* in good abundance; more so than I have ever seen it elsewhere. I might have gathered in a short time, I dare say, forty specimens, or more, within the space of less than an acre of ground. Now what may seem strange, and to do me no credit as a searcher for plants, is, that although this ground has been known to me from my earliest years, and to my father before me, we never found there *Botrychium Lunaria*; neither, I may add, did Lady Aylesford ever discover it in this locality, though she frequently botanized about Coleshill Pool, and had a most keen eye for a minute plant. Nay, more, I was over the very spot last summer (1847), in company with some botanical friends, and we did not observe the fern. True it is, we were not on the *look out* for moonwort; nor had I the least idea that it had ever been found on Coleshill Heath, till Mr. Thickins subsequently reminded me that in the second edition of Newman's *Ferns* it is stated that "Mr. Murcott has observed it on heathy ground near the upper part of Coleshill Bog." But a botanist, I admit, ought to have his eyes open at all times and in all places, for

anything and everything, if he would do his work as it should be done.

It would appear, then, that we had entirely *overlooked* this pretty little fern; the evidence, I confess, is strong against us; but yet I am not quite so sure that this has really been the case either in Mr. Bloxam's instance in Leicestershire, or my own at Coleshill Heath. Plants certainly do sometimes start up on a sudden in a new locality, and as it were spontaneously, or at least nobody knows how. I have elsewhere recorded (Mag. Nat. Hist. vol. ii. p. 70) the spontaneous appearance of *Epipactis latifolia* in a newly-made plantation on my premises. Instances, indeed, of this plant's spontaneous appearance in similar situations have so repeatedly come under my observation, that I almost dare venture a wager, that I will make a new plantation, and that in the course of a few years the *Epipactis* shall make its appearance there of its own accord. When I speak of the *spontaneous* appearance of a plant, I beg to be understood as not intending to express by that term anything like the unphilosophical notion of what is called "spontaneous generation" in the animal kingdom. I simply mean the appearance of a plant of its own accord in a situation where it was not used to grow, and in a way that one cannot account for :

——— "nullis hominum cogentibus, ipse
Sponte suâ veniunt."

I will mention another instance, occurring also on my own premises, and within fifty yards of this house. Some years ago I took in a small bit of ground, comprising but a few square yards, from a very old piece of turf, for the purpose of making a little thicket; this bit of ground was planted, among other things, with gorse and broom; when these shrubs were grown up, I was greatly surprised at finding among them some fine plants of *Orobanche major* (or *elatior*, I am not now sure which). How did the parasite come there? I do not think it likely that the seed should have been wafted to the spot by the wind; for, to the best of my knowledge, the plant does not grow in this, or any one of the adjoining parishes. The nearest place in which I have observed it is seven or eight miles distant. Some phænogamous plants then, it seems, appear from time to time spontaneously in new and unexpected localities. Cryptogamous plants, it strikes me, and especially ferns, are still more likely so to do. The seeds of ferns, as every one knows, are extremely minute, and

accordingly may readily be conveyed to a distance by the wind and by other means; and lighting on a situation suitable to their growth, in due course vegetate and spring up. It should almost seem, indeed, that the earth and the atmosphere are *charged* (so to speak) with the minute seeds of ferns, mosses and fungi, which are only waiting for favourable circumstances to call them into active life. In this manner I suppose it is that *Asplenium Ruta-muraria* and *Trichomanes* have occasionally appeared, self-invited, in the chinks of my garden-wall and down among the brick-work of the cellar-windows. Moreover, the seeds of ferns, contrary to what I should have expected, are known to retain their vegetative power for a great length of time. I have often raised ferns from seed scraped from old specimens preserved in an herbarium. Ferns therefore, above most other plants, we might expect to meet with every now and then in new localities where they had never occurred before. I will now mention an instance of what I consider the spontaneous appearance of a rare, or at least a local species of fern, which occurred to me in the adjoining parish of Berkswell. About two years ago I was greatly surprised as well as gratified at finding *Polypodium Dryopteris* in the crevices of a rough stone wall by the road-side, half a mile from that village. This wall, which was constructed of rough sandstone, without any mortar, had been built in the year 1829 (*i. e.*, about seventeen years before I observed the fern), for the purpose of making a facing to secure the perpendicular side of the bank, on the occasion of the road having been widened. As many of the more common species, such as *Lastræa Filix-mas* and *dilatata*, *Athyrium Filix-fœmina*, *Polypodium vulgare* and *Asplenium Adiantum-nigrum*, &c., grew originally on the bank before the road was widened, of course they soon established themselves on the newly-constructed wall, to which they proved a great ornament. In this situation I have often admired, and often gathered *A. Adiantum-nigrum*, which flourished there profusely, but never, till about two years ago (as already said) did I observe *P. Dryopteris* on the wall, and then but sparingly, and only in one spot. The following year, a friend to whom I had pointed out the fern, found a specimen on another part of the same wall, at the distance, perhaps, of fifteen or twenty yards. I must remark that I have not the slightest suspicion of any botanical *fraud* (as it is called) having been practised in this instance by any one who might have *planted* *P. Dryopteris* on this wall in order to surprise and deceive other botanists; this, I think, in the present case extremely improbable. However, should any reader of the 'Phytolo-

gist' be cognizant of such fraud having been perpetrated within the parish of Berkswell, I shall feel obliged by his communicating the fact through the pages of this useful magazine. But till such evidence be produced, I cannot but believe that the above is an example of what I have called the spontaneous appearance of *P. Dryopteris* in a situation where it did not grow till of late years, and at a great distance, too, from any known locality for the fern; for so far as I know, *P. Dryopteris* has never hitherto been recorded even as a Warwickshire species.

I must now return once more to *Botrychium Lunaria* on Coleshill Heath, which, it might seem, I had almost forgotten. I could not help observing that the surface of the ground on that part of the heath where the *Botrychium* grew, had been *burnt* within these few years for the purpose of clearing it of the heaths and gorse which grew there. The burning of the ling, &c., I should guess had taken place at least two, or perhaps three years before; it had not *destroyed* the heaths, gorse and other plants, for they had sprouted up again vigorously since the conflagration. Is it possible that this operation may have prepared the surface, and been the means of rousing the dormant seeds of the *Botrychium* to their full development? I ask this question for information. Strange things, as regards the vegetable kingdom, are confidently said sometimes to follow a conflagration. And a slight alteration of the surface of the ground, it is well known, will often occasion an entire change in the vegetation; * *e. g.*, there is a broad, green lane, a little common I might almost call it, near this place, which I often cross, and which produces a remarkably fine turf of short, close grass; the turf is often plundered for garden purposes, and pared off in thin layers, leaving the soil perfectly bare in patches of some square yards in size. On these patches, I observe, there invariably comes up a dense crop, not of the grasses, &c., which had previously occupied the surface, but of *Gnaphalium uliginosum*. Again, to take another instance, which, perhaps, is more in point, and at which I have already hinted, I have somewhere read that in parts of America

* Manures, too, are found greatly to affect the nature of the vegetation, and in a way one knows not how to account for. An intelligent friend, who resided some years in Leicestershire, himself an agriculturist, once informed me, that lime from two distinct quarries was frequently employed in the neighbourhood as manure; and that after the application of one of these limes there always came up a plentiful supply of white clover; after the other sort had been used, no white clover appeared, but constantly some other plant, which he named, the species of which I do not now remember.

where forests have been consumed by fire, and the timber totally destroyed, if the ground be afterwards left to itself, there springs up from seed a growth of forest trees of an entirely different kind from those which had preceded it, as, *e. g.*, pine after oak, or *vice versâ*, I quite forget the particulars, and that this fact is so certain, and so well known to the inhabitants, that they can calculate to a nicety what description of timber trees will spring up in this or that forest after the present growth shall have been destroyed by fire. I cannot vouch for the truth of these things, but I have seen them narrated as grave and sober statements of matters of fact.

I hope it will not be thought that I have entered into this long, and, I fear, very tedious discussion, merely in my own defence, as it were, and with a view to screen myself from any obloquy which may seem to attach to one who has *overlooked* a plant on ground over which he has repeatedly botanized. The truth is not so. In the case of *Ranunculus Lingua*, a far more conspicuous plant than the little dwarfish fern in question, and one therefore which ought still less to escape detection, I have pleaded guilty, to the fullest extent, and confessed the defectiveness of my own botanical researches. But as regards the *Botrychium* on Coleshill Heath, I must say it is strange that it never should have been found either by Mr. Thickins or by myself until this season, if it has grown there in equal abundance for many former years. Mr. Bloxam's case, too, may possibly fall nearly within the same category, though *he* may not be able to allege a conflagration in aid of his defence. Perhaps, therefore, *Botrychium Lunaria* might with no great impropriety be added to *Epipactis latifolia*, *Orobanche major* and *Polypodium Dryopteris* as examples of plants

"Sponte suâ quæ se tollunt in luminis aures."

W. T. BREE.

Allesley Rectory, August 15, 1848.

Occurrence of Filago apiculata near Great Braxted, Essex.

By G. E. VARENNE, Esq.

IN a gravel-pit at Great Braxted, in this county, there are to be found specimens of *Filago apiculata*, which are now coming into full flower. The locality is not confined to the gravel-pit, the middle of

a neighbouring wheat-field, which is not remarkably light land, producing also some fine specimens.

These plants perfectly agree with the description by the Rev. G. E. Smith (*Phytol.* ii. 575), not excepting the tansy-like odour of the leaves, which is very distinct. It may not be amiss to mention that the normal form of *Filago germanica* abounds in both the above-named localities.

The lateral position of the heads of flowers described by the Rev. G. E. Smith, as a peculiar character of *Filago apiculata*, is to be met with not uncommonly in specimens of *F. germanica*, whilst the full-grown varieties of *F. apiculata* have forked branches, which bear, in an uncertain manner, one, two, or three lateral heads and a terminal one.

Whether the general appearance of *F. apiculata*, its peculiar odour, the colour of the spinous points of the involucreal scales, the number of the flowers in the heads, and the really spatulate form of the lowermost leaves, are of sufficient importance to allow it to be raised to any higher rank than that of a variety of *F. germanica*, further observation may determine, the object of the present communication being merely to record the existence of the plant in this part of England as illustrative of its geographical distribution.

E. G. VARENNE.

Kelvedon, Essex,
August 16, 1848.

Discrepancies between the actual Flowering Seasons of British Plants and the Months indicated by the Floral Authorities.

By ISAIAH W. N. KEYS, Esq.

I HAVE been pleased to find that the subject on which you inserted a few notes from my pen in the February number of the 'Phytologist' for this year, namely, the frequently observed discrepancy between the seasons when plants blossom, and the months recorded in our floral books, has received the attention of others interested in the accuracy of botanical description. *Vide* articles by E. Lees, Esq. and C. D. Snooke, Esq., in the last number, (*Phytol.* iii. 190, 203).

The following extracts from my journal for this year, being cumulative evidence, may not be altogether uninteresting:—

January 9.—Noticed the leaves of young plants peeping out. Daisies were not unfrequent in the fields. In Babington's Manual

March is given as the first month of this plant's appearance. The 'British Flora' says "from early spring." Query, Did the author comprehend January in the spring months? Particularly remarked the reniform leaves of *Cochlearia danica*; also the leaves of *Geranium molle*, *columbinum* and *Robertianum*. *Cotyledon Umbilicus* was exhibiting its thick, peltate leaves on old walls, at the base of the withered, brown raceme of the parent plant.

January 12.—The leaves of various *Geraniums* presenting a fresh and healthful appearance in Saltram woods. Plucked a piece of *Rubia peregrina*, with large, black fruit on it. The authorities already mentioned give the flowering-season of this plant as extending from June to August. The example which in this month I found in fruit must, it may be presumed, have flowered much later. In various spots in my walk the dandelion was displaying its golden rays. Babington confines this plant within the 3rd and 10th months, limits which Hooker wisely avoids. He says nothing regarding its flowering-season. Searched in the usual place in the wood for *Galanthus nivalis*, but found none. At this circumstance I was surprised. All other plants seemed earlier than usual, but the snowdrop, the proverbial "herald of the infant year," eschewed haste. Found *Oxalis Acetosella* in leaf. It flowers, according to the lists, in May. It must have been precocious this year. Saw several fine tufts of daisies.

March 14.—Gathered *Helleborus foetidus*. Sir W. J. Hooker says April. Also, *Pulmonaria officinalis*. The last-mentioned author, as well as Mr. Babington, insert this plant among the "May flowers." Saw colt's-foot in abundance. No flowers, however, so that they (according to authors, who place them in March and April, before the leaves) must have come and gone out of due course. It may be stated, too, that this plant is not confined to "moist chalky and clay soils" (Bab.), or "moist and clayey soils" (Hook.): it grows freely on our dry limestone, particularly on the rejectamenta of quarries. *Ranunculus Ficaria* frequent, not plentiful. Vegetation in general not so forward (having regard to its condition in January) as I expected to see it. The last-named plant flowers in April and May, agreeably to the authorities already quoted. It has always brightened my spring walks at an earlier period. Of primroses I saw a few. "April and May" again, say the book-makers. They must be more timely astir. *Mercurialis perennis* was unfolding its blossoms. Once more "April and May" are assigned as the flowering months.

June 25.—Saw *Chenopodium olidum* about to expand. Babington sets down the 8th and 9th months for it, and Hooker the 8th only.

Verbascum virgatum in flower. Both the Manual and 'British Flora' give August for the flowering of this plant.

July 18.—*Scilla autumnalis* in flower. Hooker says "September;" Babington comes nearer, naming "August" as its flowering month.

August 12.—*Echium vulgare* still in flower, and likely to continue so for some time. The Floras restrict it to June and July.

Whilst I concur with one of your correspondents that the flowering-seasons of plants are loosely indicated in our Floras, I must to some extent plead for the authors, believing that the irregularity and variety of the climate of Great Britain beset them with difficulties. At the same time, I cannot but reiterate the conviction that the true average period might be more nearly attained than has hitherto been done. Towards this end, let observations be made by collectors in all parts of our islands, and the results made patent. We may then hope to avoid such disappointment and loss of time as were experienced by another of the writers in your last number, who walked "eleven miles and back" in vain, having been deceived by the book which he followed as his guide.

ISAIAH W. N. KEYS.

Plymouth, August 17, 1848.

[I believe the secret, after all, is, as I have already explained, that the subject has not been held by our authors of sufficient importance for personal investigation.—*Edward Newman*].

Botanical Notes for 1848. By G. S. GIBSON, Esq., F.L.S.

A FEW brief notices of botanical excursions, &c., during the present summer, may not be uninteresting to some of the readers of the 'Phytologist,' and although several of them proved unsuccessful, in respect of the plants specially sought for, they may not have been wholly without their use. I will begin with one to Box Hill, in search of *Teucrium Botrys*. The locality where it once grew has been kept very secret, and perhaps wisely so, but I had the opportunity of being taken to the spot by a young friend who had gathered it there himself two years ago, and who therefore well knew the situation. It is, as was described, a very stony and steep valley, facing the south, near the farther end of Box Hill, from Burford Bridge. It grew, I am informed, in tolerable plenty, over a limited space of ground, but unfortunately it is now (at least temporarily) destroyed by the land being ploughed up; it may, however, possibly reappear

in a few years, or be discovered in some similar locality; for I can scarcely doubt that it was truly wild, the place being so far from houses, and the plant being an unlikely one to have been introduced in so uncultivated and unfrequented a part. It is worthy the attention of botanists residing in or visiting that neighbourhood. We were too late in the season for most of the Orchideæ, which grow there so abundantly, and did not notice any plants of particular interest, except *Epipactis purpurata* and *Cynoglossum sylvaticum*, which grew abundantly on one part of the hill, opposite Burford Bridge. *Scrophularia aquatica* was growing on the driest sides of Box Hill, but did not vary much in character. *Dipsacus pilosus*, *Campanula Trachelium*, *Nasturtium terrestre*, *Erigeron acre*, *Bromus secalinus* and *Epilobium angustifolium*, do not appear uncommon.

My next expeditions were also unsuccessful, in search of *Liparis Læselii*, which plant is likely to be very soon exterminated in this country, by the progress of drainage. The first of them was to Bottisham Fen, where the plant was said to have been recently found, but there is so little real fenny ground remaining, that it must be nearly, if not quite extinct; and though our party, consisting of four, dispersed ourselves over the peaty moor, we were unable, after several hours' careful search, to discover any trace of it. Here grow *Viola lactea*, *Apargia hirta*, *Alisma ranunculoides*, *Ranunculus Lingua* (very rare), *Erysimum cheiranthoides*, *Myriophyllum verticillatum*, *Schœnus nigricans*, *Juncus obtusifolius*, *Bromus erectus*, *Chara hispida*, &c. In returning by Cherry Hinton we gathered *Bunium Bulbocastanum*, *Orobanche elatior* on *Knautia arvensis*, *Linum perenne*, abundantly, &c.; near Babraham *Brachypodium pinnatum*, *Astragalus glycyphyllos* and *hypoglottis*, *Orchis pyramidalis* and *Filago Jussæi*. Further on, near Hildersham, is a rich little spot, scarcely a hundred yards in extent, on which grow *Anemone Pulsatilla*, *Potentilla argentea*, *Trifolium scabrum* and *striatum*, *Dianthus deltoides*, *Thesium linophyllum*, *Hypochaeris maculata*, *Phleum Bœhmeri*, &c.; and in the corn-fields around, *Silene noctiflora*, *Fumaria Vaillantii*, *Galium tricorne*, *Bupleurum rotundifolium*, &c., are often met with, also in a neighbouring copse, *Aceras anthropora*.

The second journey was to Burwell Fen, where *Liparis* formerly grew plentifully. This fen, too, has been drained within a few years, and to such purpose, that we were informed the land which was formerly worth only five pounds per acre, would now sell for thirty. There is a fen beyond still undrained, where the plant may possibly grow, but it was too full of *Arundo Phragmites* and *Cladium Maris-*

cus, to admit of much examination. Among the plants we observed were *Lathyrus palustris*, *Sium latifolium*, *Œnanthe Lachenalii*, *Pucedanum palustre*, *Nymphæa alba*, *Ranunculus Lingua*, *Rumex palustris*, *Sparganium simplex* and *natans*, *Potamogeton pectinatum* and *rufescens*, and a *Nitella*, which appears to be *N. hyalina* or *tenuissimus*. In returning to Newmarket along the Devil's Ditch for several miles, we were unable to find *Barkhausia foetida*, which has been said to grow there, and the only uncommon plants seen, were *Thesium linophyllum*, *Cineraria campestris* and *Brachypodium pinnatum*. There does not seem any trace now of *Asperugo procumbens* in Newmarket churchyard, where it once grew, or of *Veronica spicata* on the heath. *Filago Jussiei* we noticed on the borders of some corn-fields. While speaking of this plant, I may observe that it has been found at intervals over a district of twenty miles in extent, on the borders of Essex and Cambridgeshire, and was also found near Hertford, by James Backhouse. Since sending my former notice of it, I had the pleasure of seeing *F. apiculata*, of G. E. Smith, in a new station, near Thetford, and am quite satisfied that the two plants are quite distinct, as are both of them from *F. germanica*; the broad, short leaves, the bright purple points of the calyx, the very woolly heads, and the different growth of the branches, though not the only distinctive marks, are such as attract attention at first sight, and are, I believe, permanent. Though the characters of distinct species should be such as to admit of description on paper, yet it is not always easy to do so, even when a merely casual observer might be able to distinguish them by their appearance alone; however, in this case, there are more points of difference than in very many species now admitted. Thetford is a first-rate locality for the botanist, the sandy soil producing so many plants rarely found in other districts, such as *Artemisia campestris*, *Silene Otites* and *conica*, *Galium anglicum*, *Veronica verna* and *triphyllus*, *Apera Spica-venti* and *interrupta*, *Medicago falcata* and *minima*, *Schleranthus perennis*, *Hypochæris glabra*, &c.

I should feel much gratified if these few and very imperfect observations serve as a stimulus to any fellow-botanists in ascertaining localities of rare or little known species. I believe much remains to be done even in the most frequented parts of England, and that many new species, not merely *hair-split*, but *true* species, would yet be added to our Flora.

G. S. GIBSON.

Saffron Walden, August 18, 1848.

Remarks on the Period of Duration of Reseda Luteola, &c.

By GEORGE LAWSON, Esq.

IN February of the present year, while walking along the railway embankment at Ninewells, near Dundee, my attention was attracted by numerous plants of the *Reseda Luteola* that had flowered during the previous year, and which were sending out strong and healthy shoots, which gave promise of flowering again during the present season. One of these plants, with the previous year's flower-stem still attached, I removed to my garden, in order the better to watch its progress; and it is now, at the present time, in full flower, and a most luxuriant plant it is, with the last year's flower-stem still standing withered and bare, to show the perennial duration of the plant.

From the above facts I am not desirous of arguing that this *Reseda* should be considered as in any way having claims to be classed as a constant perennial. Even on the very same embankment where I observed the perennial plants, there were the withered remains of many that had evidently, by their single upright flower-stem, produced flowers and seeds only once, and then died. The perennial plants observed I look upon as exceptions (although indeed numerous) to the general rule,—plants whose strength had not been quite exhausted, as is generally the case, by the production of flowers and seeds during the preceding year, and had thus been enabled to preserve vitality until the return of spring. That, as a general rule, the *Reseda Luteola* grows up from the seed, produces flowers, thereafter seeds, and then dies, will I dare say be generally admitted; but another question relating to its period of duration arises, about which there may exist more difference of opinion, and more difference in the result of observation likewise. Is the plant an annual or a biennial; does it spring from the seed and perfect flowers and seeds, then die, all in *one* season, or does it require *two* seasons to complete this course? This question I feel a very considerable difficulty in answering, as my observations on “annual” and “biennial” plants have led me to the conclusion that these terms only form a distinction without a difference. Indeed, in books the distinction and the difference are both very clear; but when we go to the fields we find that annuals and biennials are so accommodating to circumstances, and that the “*period of duration*” of both is so changeable (the annual so very frequently assuming the character of the biennial, and the biennial in turn that of the annual), that we get into a maze of confusion and cannot tell which is which. Need I refer to the works of authors on the subject,

to show the difference of opinion that exists as to whether some plants should be classed as biennials or annuals? The fact is familiar to everybody.

While thus endeavouring to draw attention to this interesting subject, I do not shut my eyes to the many and high authorities we have for continuing the distinction of annuals and biennials; but at the same time I must be allowed to express my own candid conviction that the sooner the distinction is abolished the better.

GEORGE LAWSON.

Dundee, August 18, 1848.

Monstrosity in Plantago lanceolata, L. By W. ANDERSON, Esq.

A FEW days ago, while on a short botanical excursion near Brechin, I picked up a specimen of *Plantago lanceolata*, L., presenting the following curious monstrosities. Four scapes spring from one root, one crowned with leaves, nine in number. Another with leaves and spikes. Another with one leaf and seven spikes, four of them raised on peduncles from one to two inches high. And the fourth is in the normal state.

I have frequently seen a single scape crowned with two or more spikes, but I never saw so many on one plant.

I have forwarded these facts for insertion in the 'Phytologist,' thinking that they may be interesting to some of its readers.

W. ANDERSON.

Brechin, August 21, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, September 1, 1848.—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced :—

Numbers 1, 2, and 3 of vol. 8 of the 'Journal of the Pharmaceutical Society,' presented by that Society. Number 21 of the 'Journal of the Royal Agricultural Society of England,' presented by that Society. 'Catalogue of Plants found at the Cape of Good Hope,' by Dr. Ferdinand Krauss, presented by the author. 'Outlines of Botany,' part I, by William Mateer, M.D., presented by the author. British Plants from Mr. Barham, Dr. Mateer, Mr. Henderson, and Mr. Roby.

Miss Barnard, of Odsey, near Royston, and Mr. J. L. Lawrence, of Haverstock Hill, Hampstead, were elected members.

Mr. Hewett Watson presented some beautiful specimens of *Simethis bicolor*, from Mr. Borrer, collected at Poole Heath, Dorsetshire.

Dr. John Parkin read a paper "On the Potato Disease." The writer commenced by stating that, although it was too late to adopt the measures recommended by him in his work 'On the Prevention and Treatment of the Potato Disease,' there was yet time for the adoption of those which he had advised for arresting its progress after it had commenced either in the haulm or the root.

These measures, in addition to the employment of chalk and sulphuric acid, and the burning of stubble, which Dr. P. recommends in all cases when these agents can be easily obtained and the crop is small, consist either in cutting off the haulm, pulling up the stem, or raising the roots with a fork, according as the disease exists in the one or the other of these parts of the plant.

It was stated by Dr. P. that sometimes the disease commences in the haulm, sometimes in the root, the root proper, but more generally in the underground stem. The *modus operandi* of these measures was explained by Dr. P., and this part of the subject has been fully treated in his work. Dr. P. further advised that the tubers should be left in the ground until required for use, as no doubt, he said, could exist that exposure to the air hastened the process of decay after it had attacked the tubers. The writer concluded by stating it to be his intention to favour the Society on a future occasion with additional evidence which he had obtained, not only with respect to the efficacy of these measures, but of those also which he has recommended for the prevention of the disease, and which of course are of the most importance.—*G. E. D.*

Some Account of the several alleged Species included under the name of Filago germanica of Linnæus. By HEWETT C. WATSON, Esq.

FOR some years past various botanists have entertained the idea that more than one single species are included among the plants to which the name of *Filago germanica* is currently applied. Two years ago, the Rev. G. E. Smith communicated specimens of his *Filago apiculata* to the Botanical Society of London, along with a diag-

nostic description, which was copied into the Report printed in the 'Phytologist' (ii. 575) for July, 1846. And by another Report from the same Society, printed in the 'Phytologist' (iii. 269) for the present month of September, it appears that Mr. G. S. Gibson and I have been simultaneously sending to the Botanical Society similar forms of the *F. germanica* under different names. This difference of nomenclature, together with a clerical or typographical error in the Report, leads to ambiguity and confusion. And as several botanists have lately applied to me about these plants and their names, I think it desirable to pen some explanations. Three apparent species are probably diffused through England; and it will not be too late to look for examples of them in October. Before another summer I trust that the Botanical Society of London will have rendered them sufficiently familiar to all its members who care to receive specimens.

By far the clearest account of these alleged species which I have seen, occurs in a memoir upon them by Jordan, read before the Linnean Society of Lyons in the autumn of 1846, and afterwards published with characteristic figures. The descriptions and figures of Jordan, together with specimens communicated to the Botanical Society of London by M. Sagot of Paris, afford the most ample means for identifying the three English species, real or supposed. Jordan alleges, and probably with justice, that the attempt to describe two species only, instead of three or four, has led to confusion and uncertainty; specimens of the intermediate species having been referred, now to one, now to another, of the two described; thus misapplying or crossing their proper characters. The descriptions of that author are lengthy; but the more peculiar distinctions are repeated in a condensed summary, which I copy below with some trifling omissions:—

“*Filago spatulata* (Presl) is distinguished from the three others by its leaves, which are always more or less spatulate, never widened at their base, more spreading and broader; the branches much more open; the clusters larger, more depressed, less cottony, and furnished with longer and more spreading bracts; the heads less numerous, of a more oval form, with sharper angles, and scales of larger size and more curved.

“*Filago lutescens* (Jord.) is readily recognized by its yellowish tomentum, and by the points of the scales which very frequently assume a beautiful purple colour. The form of its leaves distinguishes it perfectly both from *F. spatulata* and *F. canescens*. Indeed, they are always lanceolate above, but obtuse with a small mucro at their tip. The branches are but little spreading. The clusters hold exactly an

intermediate place between those of *F. spatulata* and *F. canescens*, by their form, as well as by the form, number and size of their heads, and by the form of the scales and length of the bracts; but they are frequently as cottony as those of *F. canescens*, and the points of the scales are straightish.

“*Filago canescens* (Jord.) has whitish tomentum, and the points of the scales pale not red. Its leaves are remarkable by their wavy margin, usually much revolute; they are oblong or lanceolate, like those of *F. lutescens*, but always acute. The branches are little spreading, repeatedly dichotomous, almost as in *F. lutescens*. The clusters are usually very round, very cottony, and furnished with short bracts; they are composed of numerous heads, straightish, with inconspicuous angles, and with nearly straight scales, very distinct from those of *F. spatulata*.

“*Filago eriocephala* (Guss.) is remarkable by the abundance of grayish cottony down, which covers all parts and assumes often a yellowish green colour at the summit of the plant. The leaves are very numerous and imbricated; their margins are less revolute and less undulating than in *F. canescens*; their form differs little from that of the leaves of *F. lutescens*. The stems differ in habit from those of these two species, slightly ascending from their base, only once or rarely twice dichotomous at the summit, with more curved branches. The clusters are very round or subellipsoidal, and consist of heads straighter and more numerous than in the other three species. The achenia are remarkably small; being half the size of those of *F. canescens*. This last character is decisive, since in the other three species, which are otherwise very distinct, the achenia do not present such appreciable differences of size.”

Such is Jordan's account of these four alleged species. The first, *F. spatulata*, he shows to be identical with *F. Jussæi* of Cosson and Germain; and he retains the name of *F. spatulata* (*Presl*) in accordance with the recognized rule of priority. For a similar reason Jordan's own name of *F. lutescens*, given to the second species, must yield before the earlier one of the Rev. G. E. Smith, whose *F. apiculata* is undoubtedly the same thing; although it seems probable that Mr. Smith may have had some specimens of *F. spatulata* in view while drawing up his character for *F. apiculata*, and may have thus laid stress upon the “*spathulate*” leaves of the latter, while that character more truly belongs to the former, as is well indicated by the name.

The third species, *F. canescens*, apparently intends the plant which ordinarily represents the Linnean *F. germanica* in herbaria. But in

this instance Jordan's figures are less characteristic ; since that of *F. eriocephala*, in general habit and ramification, far better represents our ordinary *F. germanica*, than does his figure of *F. canescens* ; and the same holds true of Sagot's French specimens, which precisely accord with our *F. germanica*, growing in cultivated ground. When the latter grows on dry hedge-banks and similar places, it is exactly the plant represented by Jordan's figure of *F. eriocephala*, except in being less cottony, and possibly having larger achenia. For the present, therefore, I must regard Jordan's third and fourth species as a single one only, sufficiently well represented by the plant so familiar to British botanists under the name of *F. germanica* (*Linn.*). Boue's Algerine specimens, labelled under the same name, have the copious tomentum of *F. eriocephala*, but their achenia are too immature to show their true size. The achenia of our common English *F. germanica* are rather smaller than those of *F. spatulata* and *F. apiculata* ; but I have seen no English specimen so densely cottony as those from Africa.

I take it, therefore, that we have three apparent species in Britain, to which the names of *germanica* (or *canescens*), *spatulata*, and *apiculata* must be applied respectively ; and these it will not be difficult to distinguish whenever well grown specimens are examined. With the exception of the Rev. G. E. Smith's Yorkshire specimens of *F. apiculata*, all the British specimens in my own herbarium belonged to *F. germanica*, until I began to seek particularly for the other two species in this county ; and as I now find the *F. germanica* vastly more abundant and general within a circuit of thirty miles, than either of the others, it is probably the usual representative of the Linnean species in herbaria ; and it is very well figured in English Botany.

The other two species, *spatulata* and *apiculata*, are distinguished at once from the former by the sharply pentagonal and conical form of their heads, larger in size, and only about half as numerous in the clusters ; as also by their achenia, which are larger and more shining. From each other they are distinguishable by colour and ramification. *F. apiculata* is more of a grass-green hue, its tomentum yellowish, and scales crimson or purplish at their tips, especially in an early stage of the flower. *F. spatulata* has a leaden-grey tint, with more decidedly spathulate leaves, even those on the branches as well as those at the base of the stem. The ramification is much more spreading, giving a general habit more like that of *Filago gallica*, or some species of *Fedia*, than is seen in either of the other two species, in which the branches, if spreading at their bases, usually curve into

a suberect position. The heads are larger and more sharply angled than those of *F. apiculata*.

It should be added, nevertheless, that the species must be judged of by a combination of characters rather than by any single character in itself; and allowance must be made for the varied situations of growth. For instance, on dry gravelly roads the *F. germanica* is often much stunted, its branches spread widely, and the heads are fewer in number, larger in size, and more distinctly pentagonal; so that, in this state, it may be difficult to distinguish it satisfactorily from examples of *F. spatulata* which have grown under somewhat similar conditions. So again, one of my finest specimens of *F. germanica* has remarkably green and broad leaves, not undulated at the margin. And I have examples of *F. spatulata* with leaves equally green as those of *F. apiculata*; indeed, of a more lively green than in many examples of the latter. The lowest leaves of all three are not seldom spatulate; while the uppermost leaves of the true *F. spatulata* occasionally incline to the cordate-oblong or lanceolate form seen in the other two.

It may be expected that all three will be found widely diffused with us. In the summer of 1847 a specimen was given to me by Mr. Bull as probably referrible to *F. apiculata*, although the red colour was scarcely perceptible on the scales. The specimen was likely gathered near Guildford or Godalming; and the examination lately of numerous others from this county, now satisfies me that Mr. Bull was correct in his suggestion. Late last autumn, I found two or three very small and stunted specimens of the same species, in a sandy pathway near Ockham Pond, Surrey. Having again found it this past summer, and in better condition, in a lane on the sandy ridge called Fairmile, between Cobham and Esher, in the same county, I was induced to search the adjacent fields, and soon discovered an abundant crop in a neighbouring wheat-field. I have since found the same very sparingly in the stubble fields near Thames Ditton, Long Ditton, West Moulsey, and Walton. In course of my searchings a few stray specimens of *F. spatulata* were also discovered in Thames Ditton and Chessington parishes; and in crossing a wheat stubble by the Thames between Walton and Sunbury Loch, on the first of this September, I came upon a copious supply of the *F. spatulata* in an excellent condition for exhibiting its characteristic distinctions as compared with the other two, both of which grew very sparingly amongst the plants of *F. spatulata*. Mr. G. S. Gibson has met with both species in the vicinity of Saffron Walden. And it appears by the 'Phytologist' of the current month, that Mr. Woods has gathered the *F. spatulata* on

the beach at Studland, in considerable abundance. I have heard of other localities for one or other species, but can say nothing positive concerning them.

In conclusion, I would observe that certain questions remain to be settled. Which form is the *ipsissima* *Filago germanica* of Linnæus? What is really the *F. pyramidata* of Linnæus? Is the *Filago eriocephala* of Gussone distinct from the *F. canescens* of Jordan; and if distinct, have we both these latter in England? Are the *F. spatulata* and *F. apiculata* distinct from each other, and from the plant usually representing *F. germanica* in English herbaria? Lastly, what are the localities or general distribution of the two former in England; namely, of *F. spatulata* and *F. apiculata*?

HEWETT C. WATSON.

Thames Ditton, 3rd Septr., 1848.

P.S. Since sending the notes on *Filago germanica*, and its allies, I have been enabled to examine the Linnean herbarium, re-opened after the cleansing vacation. *F. germanica* is there represented by three specimens, on different sheets. One of these, marked "*germanica*" in the handwriting of Linnæus, is our ordinary plant so named. A second is apparently *F. spatulata*. The third, marked "*pygmæa*" by Linnæus, and altered with pencil to "*germanica*" by Smith, is a distorted plant, probably belonging to *F. spatulata* also; certainly not *Evax pygmæa*. I find no *F. pyramidata* in the Linnean herbarium.

H. C. WATSON.

Occurrence of Equisetum hyemale and E. umbrosum in Northumberland. By JOSEPH SIDEBOTHAM, Esq.

It may be interesting to some of your readers to know that *Equisetum hyemale* and *E. umbrosum* are found in abundance on the banks of the Coquet, near Felton, Northumberland, and also near the celebrated hermitage of Warkworth. Of the *umbrosum* I dried a few barren fronds, to which any of your readers are welcome.

JOSEPH SIDEBOTHAM.

Manchester, September 9, 1848.

Scotch Locality for Asplenium fontanum.

By the Rev. W. T. BREE, M.A.

IN the August number of the 'Phytologist' I gave a most imperfect notice relative to *Asplenium fontanum* having been recently found in Scotland; but having unfortunately lost the memorandum I made at the time the information was given me, I was unable to state either the locality of the fern or the name of my informant. I have now ascertained through the kindness of Lady Maria Finch and her intelligent gardener, Mr. David Hutcheson, that *Asplenium fontanum* was met with by him in considerable abundance on "shaded rocks by the sea two miles north-east of Stonehaven, Kincardineshire, in 1842." I can now therefore entertain no doubt as to this beautiful fern being a native of Scotland.

W. T. BREE.

Allesley Rectory, Sept. 15, 1848.

Hereditary Variations of Plants. (Extract from the 'Gardeners' and Farmers' Journal,' of September 9, 1848).

"THE following not less remarkable or interesting fact was related to us by Mr. M'Nab, namely, that he had sown the seeds of *Ilex Balearica*, from which he had produced the common Holly. He had also raised from the seeds of the tender Madeira Holly (*Ilex Perado*) a variety identical with that known as Hodgin's Holly, and although the offspring of a tender parent, yet, like Hodgin's variety, it was also quite hardy. We regard these as extremely interesting facts. We have here the *Ilex Balearica* reverting back into the type of the genus the common English Holly, and this, too, although an exotic, and acknowledged species; while in the case of the *Ilex Perado*, a plant scarcely deserving the name of even half-hardy, it produces an offspring not only wholly different and unlike itself, but what is far more remarkable, the progeny is hardy while the parent is tender."—Editor of the 'Gardeners' Journal,' in an article intituled "Notes of a Gardening Tour," and referring to the Botanic Garden of Edinburgh.

Authorship of the 'Flora Hertfordiensis.'

By the Rev. W. H. COLEMAN, M.A.

WILL you oblige me by contradicting in your next No. the inference conveyed in an editorial note in your last, that the principal share in the 'Flora Hertfordiensis' is due to myself? This statement is altogether unjust to Mr. Webb, with whom both the design originated of publishing a County Flora, and who is now carrying it into effect, without any co-operation on my part beyond an occasional criticism, and (in Part 2) my assistance in correcting the press. It is true that the geographical arrangement of the work was sketched by me, and that I formed some of the district catalogues. But at least an equal share in the general observations on which the work is founded belongs to Mr. W.; and the present plan of the work, independent of the geographical arrangement, is entirely his. I should be sorry that the accidental circumstance of my name being better known to the botanical world should create an impression that I have had the larger share in the execution of the work: and for this, among other reasons, I was desirous that my name should not have appeared except as an ordinary correspondent. But as I could not persuade Mr. Webb to agree to this, and he has run the risk of losing part of his own due through his anxiety to do justice to me, you will excuse me if I enter a strong objection against such remarks as that which has called forth the present observations.

W. H. COLEMAN.

Ashby-de-la-Zouch, August 21, 1848.

P. S.—In my paper on Botanical Geography two misprints occur, which materially injure the sense. On page 217, line 31, "dissecting" should be "bisecting;" and page 220, line 23, "the Flora of the list" should be "the Flora of the first."

[I beg most explicitly to state that I had no idea of robbing Mr. Webb of any part of the credit due to him on account of the 'Flora Hertfordiensis;' from his own very explicit statement in the introductory notice I was perhaps led to believe that Mr. Coleman's share in the work was greater than it is. I believe it is notorious that these excellent botanists were fellow-labourers in the same field.—*E. Newman.*]

New Variety of Wheat.

ADVICES from St. Petersburg, to the 12th August, mention that a new variety of the Arnautka wheat has recently been discovered and cultivated in Bessarabia. It is called the Kolus or large-eared wheat, on account of the peculiar beauty of its ears. At present it is limited to mere seed-wheat, and fetches twice the price of the ordinary Arnautka. One other and more important peculiarity of this grain is, that it is less affected by drought than any other varieties. At the same time it possesses several other features, being distinguished by its greater fertility, its deep amber color, and its earlier ripening. This important discovery was made by a peasant of the name of Bulatowisch, in the village of Troitzk, in the district of Bender, who, being a close observer of nature, detected in his crops certain ears which were larger and became ripe earlier than the rest of the crop. These he collected and sowed separately, and the result was an abundant harvest, and the introduction of a new and valuable variety of wheat. The Russian Government it is to be hoped will not let such an opportunity pass of rewarding one so deserving of a substantial mark of its favor. The event had created a great sensation amongst the agriculturists and dealers in grain, and the new wheat well merits being named after its discoverer.—*Morning Chronicle, August 25, 1848.*

Note on Alsine rubra, var. media, Bab.

By FENTON J. A. HORT, Esq.

IN the September number of the 'Phytologist' Mr. Woods speaks of having found at West Lulworth "on the chalk a form of *Arenaria marina*, with a very stout, woody root, showing several concentric circles." This brief description will apply well to a plant which I have myself observed in several localities this summer, possessing characters so marked, that botanists residing on various parts of our coasts may think it worth their while next year to make observations on the permanence of the form and the extent of its distribution. I take it to be the *Alsine rubra*, var. *media*, of Babington (*Lepigonum medium* of Fries): Mr. Babington tells me that on further study of his plant on the cliff at Tenby, and I have little doubt of its identity with mine, he is so convinced of its distinctness as to feel inclined

to follow Fries in erecting it into a separate species. The habitat is in each case remarkable: Mr. Woods finds it on the chalk cliff at West Lulworth, Mr. Babington on the (I presume, mountain limestone) cliff at Tenby, I on the soft slate at Ilfracombe, and on Devonian limestone at Plymouth and Torquay, and I believe on the new red sandstone near Dawlish, but in the last case I cannot vouch for the identity of the plant, having only seen it from the window of a railway carriage. But it is worthy of notice that in no case does it seem to grow actually on the sea-shore like *Alsine marina*: I always find it a little above highwater mark, just within reach of the spray in rough weather, and so firmly wedged into crevices of the rock that seldom can any force or care avail to preserve the woody root attached to the specimen. In general appearance it resembles *A. marina*, but is more elegant; the stems are more numerous, as well as the flowers, with which the plant, when in full bloom, is starred all over. But when examined minutely, it presents characters which, with the exception of the fleshy leaves, belong to *A. rubra*. The leaves themselves are tipped with a minute horny point: the stems, &c., are not downy, but thickly covered with glandular hairs, and all the seeds which I have examined have a "thickened rough border," but no traces of a wing.

FENTON J. A. HORT.

Torquay, September 27, 1848.

Accidental Introduction of Foreign Plants into Britain.

By HEWETT C. WATSON, Esq.

IN looking into the Second Part of the 'Flora Hertfordiensis,' recently published, I find under the head of *Erysimum orientale*, page 27, an incidental explanation to account for the appearance of foreign species in that county, which is well adapted to give a useful hint and caution to those botanists who may discover and place on record any similar novelties. The Author of the Flora writes of the *Erysimum orientale* thus:—

"We found a single specimen of this species on a newly-repaired towing-path near Ware Mill, in 1841; in company with *Brassica Napus*, *Saponaria Vaccaria*, *Asperula arvensis*, and *Echinosperrum Lap-pula*. The gravel with which the bank was repaired, was probably obtained from the bed of the river by dredging,"—

Now, suppose that the Author had stopped abruptly here, as some

and we should have been left with apparent evidence that the species botanical registrars (I am sorry to say) very probably would have done; mentioned were old inhabitants of Britain, the seeds of which had remained long dormant under water. But how different will the aspect of the case become when the concluding portion of the paragraph is added to the former, in the following terms:

— “and the seeds perhaps brought with flax to the Oil Mills, a circumstance which may account for several other scarce plants, not strictly native, being found in the immediate vicinity of Hertford and the river banks, and which, having ourselves met with, we think it right to include.”

No doubt it is right and judicious to mention such plants in a Local Flora; because, when thus accompanied by explanatory suggestions respecting their origin, the record is rendered a really valuable fact to the botanical geographer; although, if without the full explanation, it might only deceive and mislead him.

HEWETT C. WATSON.

Thames Ditton, October 4, 1848.

Note on the Botany of Wiltshire. By T. B. FLOWER, Esq., F.L.S.

As I am about preparing for publication, in the pages of the ‘Phytologist,’ Contributions towards a Flora of the County of Wiltshire, I should feel greatly indebted to all those that have botanized in the county if they would favour me with any assistance in forming a correct and as complete a list of the phænogamous plants and ferns as possible.

Any observations on the geographical distribution, or remarks on species, together with such localities for the rarer and commoner plants that may be considered of value, are particularly solicited, especially when accompanied with dried specimens.

T. B. FLOWER.

Seend, near Melksham, Wilts,
October 3, 1848.

Localities for some of the Rarer Plants of Warwickshire.

By the Rev. ANDREW BLOXAM, M.A.

IN continuation of Mr. Kirk's list of the rarer species of Warwickshire plants, described by him in the second volume of the 'Phytologist,' page 969, I beg leave to add the following, as observed by me in the neighbourhood of Atherstone.

Atropa Belladonna and *Dipsacus pilosus*, in an old stone-quarry on the left above Merevale Church.

Polygonum Bistorta, in a meadow on the side of the road opposite to Merevale Church.

Vicia sylvatica, *Campanula Trachelium*, *Epilobium angustifolium*, *Cardamine impatiens*, *Euphorbia amygdaloides*, *Scirpus sylvaticus*, *Equisetum palustre*, *Hieracium boreale*, *Asperula odorata*, &c., Harts-hill Wood.

Gnaphalium erectum, in two or three localities on the side of the Coleshill-road, about a mile from Atherstone, pointed out to me first by Mr. Nugent, of Atherstone.

Mœnchia erecta, Atherstone Outwoods, also on Annesley Coalfield Heath.

• *Potamogeton lucens*, reservoir at Oldbury.

Sparganium natans, *Helosciadium inundatum*, *Potamogeton rufescens* and *oblongus*, in ponds on Annesley Coalfield Heath; also on the same heath *Rubus plicatus* and *R. foliosus*, *W. & N.*: this is the *R. hirtus*, *δ. foliosus*, of Bab. 2nd Supp. to the Syn. of Brit. Rubi; and has been found by me also on Baxterley Common, and in several localities in Hartshill Wood.

Juncus diffusus, on Baxterley Common; this I believe is the first notice of its discovery in Warwickshire. *Osmunda regalis*: though I have not myself met with this beautiful fern, yet I understand from an individual who is well acquainted with it, that it grows in considerable abundance by the side of some of the ponds at Arbury, near Nuneaton. It is not, however, mentioned by Mr. Kirk in his list before alluded to, who describes several rare plants as growing in Arbury Park, and by the side of the ponds adjoining the hall.

In reference to an observation of Mr. Bree's, in the last No. of the 'Phytologist,' I may mention that four or five years ago I received from Mr. Murcott specimens of *Botrychium Lunaria*, from Coleshill Bog. I believe it has been overlooked by me in my own neighbourhood from its growing amongst thick old turf, never apparently subjected to the plough, and which generally overtops its fronds. As it

soon withers, after having ripened, it is only conspicuous for about two months in the year. In looking for it more carefully at the proper season, and in likely situations, I found it in three other localities in the parish. I take the present opportunity of stating that I lately found, on a temporary manure-heap not far distant from my residence, *Erodium moschatum* and *Chenopodium murale*, neither of which I have observed in Leicestershire before.

ANDREW BLOXAM.

Twycross, October, 1848.

British Rubi in Yorkshire. By the Rev. ANDREW BLOXAM, M.A.

HAVING during the month of August last been sojourning for a few days at Horton Rectory, between Rotherham and Doncaster, I had an opportunity of observing the different species of Rubi growing in that neighbourhood, of which I send you a list, with a few remarks.

1. *R. Idæus*, Linn. Horton Cliff, &c.

2. *R. affinis*, W. & N. A form coincident with that in Mr. Leighton's fasciculus from Shropshire. It is abundant in the hedges about Horton and Ravenfield, and readily distinguished by its numerous and strongly curved prickles on the flowering panicle, with their well-marked purple bases and yellow tips. When this species becomes better known, it will, I think, be found to be very generally diffused at least throughout the midland counties of England. I have it from Mr. Lees, in Worcestershire. Mr. Babington finds it in great abundance at Llanberris, North Wales, Mr. Leighton in Shropshire; I have also observed it in great quantity near Rugby and Grendon, Warwickshire; at Newbold Verdun and other places in Leicestershire; in South Wood, near Calke Abbey, Derbyshire; and possess also specimens of it from Bredbury Wood, near Manchester.

3. *R. nitidus*, W. & N. Near Swinton.

4. *R. corylifolius*, Sm. Horton Cliff, &c.

5. *R. discolor*, &c., Bab. Syn., *R. fruticosus*, E. B. Roch Abbey Wood, &c.

6. *R. leucostachys*, Sm., *β. vestitus*, Bab. Syn. This and *R. cæsius* are the two prevalent forms in Roch Abbey Wood.

7. *R. sylvaticus*. Horton Cliff. A form identical with that in Mr. Leighton's fasciculus.

8. *R. Borreri*, Bell Salt. In Denaby Wood, near Mexborough. Mr. Coleman finds it in considerable quantity in South Wood, Derby-

shire. It is also abundant on the Atherstone and Coleshill road, Warwickshire, about a mile from the former place, growing with *R. Guntheri*, *W. & N.*, and other more common forms. I find it also in the neighbourhood of Rugby, on the Dunchurch-road, in several localities. I have received it from the late lamented Mr. Edward S. Wilson, from the neighbourhood of Congleton, Cheshire. The other closely allied, if at all distinct species, *R. Sprengelii*, *W. & N.*, is found abundantly on Bardon Hill, Leicestershire, where it is readily distinguished by its beautiful pink flowers. Mr. Lees finds it on Bromsgrove Lickey, and Mr. Sidebotham in Bredbury Wood, near Manchester, from both of whom I have received specimens. This appears to me to be the weak, and *R. Borreri*, *Bell Salt.*, to be the more robust, form of the same species.

9. *R. carpinifolius*, *W. & N.* Horton Cliff.

10. *R. amplificatus*, *E. Lees.* *R. macrophyllus*, γ . *amplificatus*, *Bab. Syn.* Horton Cliff.

11. *R. rudis*, *W. & N.* Near Ravenfield.

12. *R. radula*, *W. & N.* In hedges.

13. *R. hystrix*, *W. & N.* *Radula*, β . *hystrix*, *Bab. Syn.* In Roch Abbey Wood. This appears to me to be a perfectly distinct species from *R. radula*, and, as far as my observation extends, to be very generally diffused.

14. *R. Kæhleri*, *W. & N.* Common in hedges about Horton and Ravenfield.

15. *H. nemorosus*, *Hayne*, *dumetorum*, *W. & N.* One of the most common of our British Rubi in the midland counties.

16. *R. cæsius*, *Linn.* Common. Horton Cliff and Roch Abbey Wood.

17. *N. saxatilis*, *Linn.* In great abundance in two or three localities in Roch Abbey Wood.

Two or three other forms were also observed by me, the identity of which I have not as yet satisfied myself about.

ANDREW BLOXAM.

Twycross, October, 1848.

Notice of the 'London Journal of Botany,' Nos. 76 to 82, for April to October, 1848.

No. 76. *Original Papers*: "Sur la Famille des Linées;" by Dr. Planchon. "On some new Musci, collected by Professor W. Jamieson, on Pichincha;" by Dr. Thomas Taylor. *Botanical Information*: Dr. Thomson's Scientific Mission to Thibet. Notes on the Botany of the United States; by Dr. Bromfield. On *Conserva ægagropila*; by Rev. T. Salway. Thibetian Barley. Brief Notices of Plants from Sir George Simpson's Journey round the World. *Notices of Books*: 'Journal of the Indian Archipelago and Eastern Asia.' 'Descriptions et Figures des Plantes Nouvelles et Rares du Jardin Botanique de l'Université de Leyde;' par W. H. De Vriese.

No. 77. *Original Papers*: "Prodromus Monographiæ Ficuum;" by Professor Miquel. *Botanical Information*: Extracts from the letters of Dr. Hooker, written during a botanical mission to India. *Musa textilis*, &c. North American Botany. *Notices of Books*: 'Opuscula Omnia Botanica Thomæ Johnsoni.'

No. 78. *Original Papers*: "Mosses collected by T. Anderson, Esq., on the Coast of China, from Chusan to Hong Kong;" by W. Wilson, Esq. "On the Specific Characters of certain new Cryptogamic Plants, collected by Professor W. Jamieson, on Pichincha, near Quito;" by Dr. Thomas Taylor. "Contributions towards a Flora of Brazil;" by Mr. George Gardner. *Botanical Information*: Extracts from Dr. Hooker's letters, continued. A continuation of Mr. Howard's account of Leichardt's travels in New South Wales.

No. 79. *Original Papers*: "Contributions to the Botany of South America;" by John Miers, Esq. *Botanical Information*: Continuation of Dr. Bromfield's Notes on American Botany. Herbarium of the late Dr. Thomas Taylor. Arrival of plants from Swan River, &c. Letter from Parlatore to Auguste de St. Hilaire. *Notices of Books*. 'Nederlandsch Kruidkundig Archief.' Gardiner's 'Flora of Forfarshire.' Gray's 'Botany of the Northern United States.' Tuckerman's 'Synopsis of the Lichens of the Northern States and British America.' Sprague and Gray's 'Genera Floræ Americæ Boreali-Orientalis illustrata.' Engelmann's 'Sketch of the Botany of North Mexico, in Wislizenus's Tour.' Nuttall's 'Description of Plants collected by Gambel in the Rocky Mountains,' &c. Ralfs' 'British Desmidiæ.' Hoffmeister's 'Travels in Ceylon,' &c.

No. 80. *Original Papers*: "Contributions towards a Flora of

Brazil;" by George Gardner. "Prodromus Monographiæ Ficuum;" by Professor Miquel. *Botanical Information*: 'Algæ Novæ Zealandiæ.' Herbarium and Library of the late Dr. Taylor. *Notices of Books*: 'Posthumous Papers of William Griffith.' Mitchell's 'Journal of an Expedition into the Interior of Tropical Australia.'

No. 81. *Original Papers*: "Prodromus Monographiæ Ficuum;" by Professor Miquel. "On some new Chinese Plants;" by H. C. Hance, Esq. "Sur la Famille des Linées;" by Dr. Planchon. *Notices of Books*: Ralfs' 'British Desmidiæ.'

No. 82. *Original Papers*: "Sur la Famille des Linées;" by Dr. Planchon. "Description of some Plants new to the British Flora;" by W. Mitten, Esq. "On a new kind of Phormium;" by M. Auguste de Jolis. *Botanical Information*: Extract from the Indian News. Dr. Stocks' on the Botany of Scinde. Dr. Stocks' 'Botanical Excursion to Shah Bilawul.' 'Notice of a Species of Fumaria new to Britain;' by Mr. Mitten. *Notices of Books*: Vriese's 'Descriptions et Figures des Plantes Nouvelles,' &c. Pritzel's 'Thesaurus Literaturæ Botaniciæ.' 'Plantæ Preissianæ.' Trautvetter's 'Plantarum Imagines et Descriptiones Floram Rossicam illustrantes.' Emerson's 'Report on the Trees and Shrubs of Massachusetts.' Tuckerman's 'Lichenes Americæ Septentrionalis Exsiccati.' Pappe's 'List of South African Plants used as remedies by the Colonists.' Miquel's 'Revisio Critica Casuarinarum.'

It will be seen from this list of contents of the London Journal, that they are addressed to general botanists, and possibly may not possess much interest in the eyes of those who cultivate British botany in particular. To this the last number offers one important exception, by the paper of Mr. Mitten, which professes to describe plants not before "noticed by any writers on British Botany," so far as Mr. M. was aware. New British plants come upon us so frequently now, that a writer may well be excused for supposing himself to be announcing, for the first time, some plants which had been earlier recorded by others. Mr. Mitten requires this indulgence for a part of his list of novelties; perhaps not for all of them. But before seeing examples of the latter, we feel it unsafe to say whether they are truly novelties, or simply familiar plants under fresh names. The following is Mr. Mitten's list:—

1. *Potentilla mixta* (Nolte apud Reich. fl. Germ. Exsic. No. 1743), found on waste ground near Valebridge, in Keymer, Sussex, in small quantity. On this plant the author of the paper remarks, "undeniably very close to *Potentilla reptans*, Linn., of which it may be but

a variety." For our own part, we have a sort of suspicion that it is the *Tormentilla reptans* of English botanists.

2. *Filago Jussiei* (Cosson and Germain). Found on cultivated land at Hurstpierpoint, Sussex. This is the *Filago spatulata* of Presl, already several times introduced to the readers of the 'Phytologist,' and which should hardly have been given in the October number of the 'London Journal,' as unnoticed by any writers on British Botany, seeing that its discovery in two or three counties was recorded by Mr. G. S. Gibson, in the August number of the 'Phytologist;' not obscurely in a mixed report, but in a distinct article expressly so intitled. It was again mentioned in the September number of the 'Phytologist' (Phytol. iii. 269), as found in "several places" in Surrey, through a Report from the Botanical Society.

3. *Mercurialis ovata* (Stud. et Hoppe). Found in hedgerows near Hurstpierpoint, Sussex. "It is," says Mr. Mitten, "probably but a state of *M. perennis*."

4. *Carex paludosa*, var. *Kochiana*. Found in ditches in the level near Littlehampton, Sussex. *Carex Kochiana*, *De Cand.*

5. *Lolium linicola* (Sonder). Found with *L. temulentum*, among various crops on cultivated land about Hurstpierpoint, Sussex. "It may be objected to *L. linicola*, that it has been introduced with foreign seed, which may be true." It was recorded from a field near Catterick Bridge, Yorkshire, in Babington's Manual, second edition, in 1847; the author of the Manual remarking that it is "probably not a native." On this record and authority probably the *Lolium linicola* was given in the second edition of the 'London Catalogue of British Plants,' published last winter. Surely Mr. Mitten should have looked into those two fullest lists of British plants before publishing *L. linicola* among plants not noticed by *any* writers on British botany. Probably the *L. multiflorum* of some English botanists.

6. *Triticum biflorum* (Brignoli). Found by Mr. G. Don, on rocks on Ben Lawers, and preserved in Mr. Borrer's herbarium. "The only British *Triticum* with which it can be confounded is *T. caninum*, from which it may be distinguished by its leaves smooth on both sides, its usually two-flowered spikelets, and its want of the long awn; it also appears to be a more slender plant, with narrower leaves."

7. *Fumaria agraria* (Lagasca). Observed by Mr. Mitten among the British *Fumariæ* in Mr. Borrer's herbarium.

The characters, &c., of these plants are chiefly transcribed from Koch's Synopsis, second edition; and we may therefore give a general reference to that well-known work for them. And if the plants,

or some of them, are not quite so "new to the British flora" as the author may have at first supposed, we are still glad to see attention drawn to them by Mr. Mitten.

It may be presumed that a new Irish Saxifrage is to be described in the next coming number of the 'London Journal;' the October number containing a figure of "*Saxifraga Andrewsii*, *Harv.*," without letter-press. The figure conveys the idea of a narrow-leaved form of *S. umbrosa*, though the flowers are larger.

C.

Record of some of our Rarer Plants growing in the Valley of the Don, between Doncaster and Conisbro' Castle. Soil calcareous.
By PETER INCHBALD, Esq.

Ranunculaceæ. *Helleborus fœtidus* and *viridis* and *Aquilegia vulgaris*. In several of the woods near Doncaster the last of the three flourishes in the wildest profusion. *Helleborus fœtidus* is less frequent than *H. viridis*.

Caryophyllææ. *Saponaria officinalis* covers the banks of the Don near Sprotbro,' and flowers abundantly.

Saxifrageæ. *Parnassia palustris* and *Chrysosplenium oppositifolium*. I have had specimens of the rarer *Chrysosplenium* (*alternifolium*) and *Adoxa moschatellina* sent to me from Roche Abbey, an old ruin about twelve miles from Doncaster.

Campanulaceæ. *Campanula latifolia*. The woods and hedges are richly decorated with this elegant bell-flower late in the summer.

Compositæ. *Doronicum Pardalianches*, *Tanacetum vulgare*, and *Bidens tripartita*. Several patches of this doubtful native, *D. Pardalianches*, occur in the valley, far from all trace of garden cultivation. It flowers early in May.

Boraginææ. *Echium vulgare* and *Cynoglossum officinale*. The bugloss grows on the top of the keep at Conisbro'.

Liliaceæ. *Tulipa sylvestris*, *Ornithogalum luteum* and *Convallaria majalis*. The leaves of the tulip are conspicuous in the grass fields early in the spring, but by the middle of May they are nearly hidden by the herbage. The flowers are seldom met with out of cultivation. The lily of the valley covers large tracts of ground in the woods near Doncaster, flowering plentifully.

To a collector who is not afraid of long walks, the neighbourhood also offers the following rare plants: *Ranunculus lingua*, *Cardamine amara*, *Astragalus Glycyphyllos*, *A. hypoglottis*, *Potentilla verna*, *Inula Helenium* (I fear eradicated), *Conyza squarrosa*, *Carlina vulgaris*, *Gentiana Amarella*, *Atropa Belladonna*, *Samolus Valerandi*, *Scrophularia vernalis*, *Leonurus Cardiaca*, *Euphorbia platyphylla*, *Stratiotes aloides*, *Neottia spiralis*, *Listera Nidus-avis*, *Gymnadenia conopsea*, *Ophrys muscifera*, *O. apifera*, *Narcissus biflorus*, *Paris quadrifolia*, *Carex digitata*, *Elymus europæus*, *Melica nutans*, *Lastræa Thelypteris*, *Lastræa Oreopteris*, *Osmunda regalis*, and *Equisetum hyemale*.

PETER INCHBALD.

Storthes Hall, Huddersfield,
October 4, 1848.

Record of the more uncommon of the Plants growing in the Neighbourhood of Huddersfield. Soil siliceous: sub-soil argillaceous. By PETER INCHBALD, Esq.

Ranunculaceæ. *Ranunculus hederaceus* abounds in the ditches and shallow rivulets in the high lands.

Fumariaceæ. *Fumaria capreolata* is frequent amongst bushes and on upland fallows. It adds much to the beauty of the few hedges that this district contains.

Violeceæ. The moors in the neighbourhood afford in abundance the *Viola palustris*. The sweet violet is exceedingly rare in the south-western parts of Yorkshire.

Caryophylleæ. *Arenaria rubra*, a true sand plant, is very common by road-sides, growing on the very edge of the beaten path.

Saxifrageæ. *Chrysosplenium alternifolium* is plentiful in woods and by the borders of rivulets in the mountainous parts of the West Riding. *Saxifraga umbrosa* completely naturalized in the woods near Storthes Hall, covering large tracts.

Rosaceæ. The woods abound with plants of *Rubus Idæus*, which sometimes grow to the height of five or six feet.

Umbelliferæ. This tribe is but scantily spread over the district. *Cœnanthe crocata* is, however, well worthy of record.

Ericaceæ. *Vaccinium Myrtillus* is very plentiful on turfy soil in the woods around Huddersfield. *Pyrola media* occurs but sparingly.

Campanulaceæ. *Jasione montana* occurs in dry sandy lanes and on bank-sides.

Compositæ. *Solidago Virgaurea* adds much to the beauty of Storthes Wood in the autumn months. Though but thinly scattered throughout the county, it flourishes here in the wildest profusion. I have gathered *Gnaphalium rectum* on sandy heath-land.

Apocynæ. *Vinca minor* grows interspersed with *Saxifraga umbrosa*, and in such abundance as to preclude the possibility of its being an escape from garden cultivation.

Scrophularinæ. *Veronica montana* is the commonest of the genus in the woods and thickets in the neighbourhood.

Orchideæ. *Epipactis latifolia* rears its purple spike of flowers on the borders of woodlands. *Habenaria viridis* is not unfrequent in grassy meadows.

Amaryllideæ. *Narcissus pseudo-Narcissus* has given the name of "Dilly Wood" to an oak-planting near the Hall. It is said to be common in the woods near Halifax.

Juncæ. *Luzula sylvatica*. Noble plants of this species are frequent in the damp, spongy parts of Storthes Wood. It is common throughout the south-west district.

Filices. *Grammitis Ceterach* occurs on old walls. *Ophioglossum vulgatum* in grassy pastures.

Equisetaceæ. *Equisetum sylvaticum* is everywhere abundant in the woods.

PETER INCHBALD.

Storthes Hall, September, 1848.

Notes and occasional Observations on some of the Rarer British Plants growing wild in Hampshire. By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 290).

IN presenting to the 'Phytologist' this fourth part of my Notes and Observations on the plants of Hampshire, it will already have become obvious, from the perusal of the third portion, that a full enumeration of the species known or reported to inhabit the county has been tacitly substituted for that selection of the *rarer* plants only, to which, as the heading to the first and subsequent divisions plainly show, I certainly intended to have confined myself at the outset. Several

reasons led me to deviate from the more restricted, to follow the wider plan, though by so doing I should nullify the title prefixed to these contributions, and possibly be charged with carelessness, inconsistency or prolixity in not adhering to my original purpose of conciseness. Yet, since to pass over such change of plan without a word in explanation might justly create surprise, I shall briefly state my reasons for the alteration. First, the difficulty in deciding where the line should be drawn betwixt common and uncommon plants had to be grappled with and disposed of, a difficulty the magnitude of which becomes greater the nearer it is approached, till at length it assumes the form of a problem, for which a satisfactory solution is hardly to be hoped. 2ndly. A principal object in preparing the Notes was to present a view of the geographical distribution of plants in Hampshire that might be compared with the distribution of the same or different plants over other counties or areas in any given part of the kingdom possessing the means of comparison. But to give such views their full value, it is requisite that the number as well as the nature of the species should be recorded; this cannot be done so long as we exclude all mention of plants reputed common, since the amount of these must always remain indefinite; besides that the omission of them leaves their very existence a matter of doubt and conjecture in some cases. It may at first sight appear trifling and superfluous to even name such species as *Bellis perennis*, *Urtica dioica*, *Poa annua* and *pratensis*, *Stellaria media*, *Taraxacum officinale*, and other weeds reputed common everywhere; but are we warranted in a confident assumption that there is no exception to the ubiquity of one or all of these, that there is no spot, perhaps an entire district, in which they may not approach the limit of rarity, or even fail altogether? Were such local catalogues as the present intended merely to subserve the acquisitive habits of the plant-collector, it would be highly advisable to discard from them all species which could but swell their bulk without profit to the inquirer; but regarded in their true light of statistical documents, every species, however common and universal, becomes an important unit when the floral census of a county or a kingdom has to be ascertained. A last and very important reason for publishing this catalogue in *full*, has been to enable my botanical friends and correspondents to see exactly, not only what plants are present or absent from the county and its island district, but in what proportion the species are rare or common, and from the stations quoted to judge which parts of the county have been best explored, and which most neglected by botanists. They

will then be in a better condition to diminish the apparent infrequency of certain plants here given as scarce, by the communication of habitats from the less examined districts, or to supply novelties on the sure ground that they are such, because *specially omitted* by name, whenever attention has not been called, as I shall do in some instances, to the probability of their occurrence. For the Isle of Wight I am desirous rather of having new *species* than receiving additional stations for those already known to inhabit it, except, indeed, for plants of great or considerable rarity, fresh stations for which will be at all times acceptable. Desiderata for the county comprehends, of course, the island part of it, but as the mainland produces many species and genera not yet found in the latter, great care has been taken throughout to note this deficiency under the proper heads, so that a contributor need not fear to send a specimen or notice of a plant, however common, as an addition to the island or county flora, if he will be only at the trouble to refer to its place in the natural sequence adopted in this catalogue, and observe whether it be entered or omitted. In the former case, he may rest assured that unless mention is made to the contrary, the species is common to both divisions of the county; in the latter, he may feel secure that his contribution will be received with all the pleasure of a new accession to the Hampshire Flora. For convenience sake, the nomenclature employed is that adopted by Mr. Babington in the second edition of the Manual, as the text-book most deservedly in use with all who wish to keep up with the progressive state of botany in this and other countries of Europe. In a more elaborate and critical performance than a catalogue like the present, some deviations from the nomenclature of the above excellent work would have suggested themselves.

In accordance with the change of plan which has just been adverted to, and before proceeding with the remaining orders of the Hampshire Flora, I have judged it expedient to insert in this place a second supplementary list of species not at first intended for publication in the three foregoing parts of these notes, together with some omissions which it has since appeared desirable to supply regarding plants already mentioned therein. The ensuing portions of this catalogue will present a view of the entire vegetation of the county as far as known to me, in an unbroken series of genera and species, forming a Prodrômus, the aim of which is to invite the attention of botanists to this hitherto much neglected part of England,* by showing them

* See 'Phytologist,' ii. 993. The gratifying response to the appeal contained in

what may be expected from farther research in a field so fertile and full of future promise, and to solicit their continued co-operation in collecting materials for an enlarged and descriptive flora already far advanced towards completion, the result of several years' assiduous observation and research.

Anemone nemorosa. Profusely in woods, thickets, and on hedge-banks in the island and county, the flowers often deep purple or rose-red, and occasionally semidouble. *A. Pulsatilla* should be looked for on the downs along the northern limits of the county.

Ranunculus sceleratus. In wet places throughout the county and island, but certainly one of the rarer species, in the latter at least, though generally diffused, occurring at wide intervals, and seldom in abundance on any single station. *R. Ficaria*, *Flammula*, *acris*, *repens*, and *bulbosus* abound over the entire county and Isle of Wight.

Caltha palustris. Common in the island and county, in wet or boggy meadows, thickets, and by streams, &c.

Helleborus viridis, add, In the deep stony lane on the left hand just before the turning to Norton Farm (Selborne), and at the top of Middle Dorton, under the hedge, Rev. G. White. I searched for the plant in the former place many years ago, and again this summer, without finding a vestige of it, and attribute its disappearance to the wearing away of the loose rocky soil forming the perpendicular sides of the curious hollow way in question, which must have undergone great changes since White's time from the action of the elements. I came, however, quite unexpectedly upon the species in what I have little doubt is White's other station at the upper part of Great (Middle?) Dorton (beech hanger), in a thick covert of briars and brambles, as truly wild and sequestered a spot as could well be required by the most inveterate contender against the claim of this species to be called native. A solitary specimen I found several years ago in St. John's Wood, at Ryde; but have never detected it since in any part of this island.

——— *foetidus*, add, In considerable plenty in rough, stony pasture-ground about St. Lawrence and Woolverton, Isle of Wight,

that paper may be judged of from the large number of genera and species that I have been enabled to erase from the list of desiderata there given, in just one year from the date of publication in this journal. The value and amount of these can be readily seen by comparison of the two lists of the then unknown and unrecorded plants above referred to with the present catalogue of ascertained natives.

and I have no doubt indigenous. On a sloping chalk-bank above the Crab and Lobster Inn at Ventnor, *possibly* introduced. No one who has witnessed the glorious profusion of this handsome evergreen in the profound solitudes and deep recesses of our majestic beech woods can, I think, reasonably hesitate to admit its right to rank amongst our undisputed natives. This is the commoner of our two British species in the south of England, as *H. viridis* seems to be in the north. The latter abounds in some parts of Yorkshire, where both Mr. Borrer and the Rev. G. E. Smith consider it as truly wild, and my opinion is now in favour of its being equally so in Hants, though less general and abundant than farther to the northward. It is likewise the more prevalent species in Germany, where *H. fœtidus* is rare, except towards the south in the Tyrol and the coasts of the Adriatic, its evergreen character unfitting it probably for the severe winters of an interior climate from which the deciduous nature of *H. viridis* protects the latter.

Nymphæa alba, add, Plentiful in the Lymington river above Hayward Mill.

Papaver Rhœas, var. *β. strigosum*, Bönningh (Prod. Fl. Monast. p. 157). Stem more branched near the root, hairs fewer, those on the peduncles appressed (excepting immediately below the flower), capsules rather less globose. Near Brading, Dr. T. B. Salter! Probably a hybrid betwixt *P. Rhœas* and *dubium*, which both abound in that neighbourhood. The *P. intermedium* of Beeker (Fl. der Gegend um Frankfort am M.) is doubtless a similar mule production wanting only the appressed hairs on the peduncles.

Glaucium luteum. Varies, as Mr. Pamplin has remarked to me, on the Hampshire coast, with flowers inclining to orange or tawny, like the *G. fulvum* of the gardens. Hayling Island, &c.

N. B.—*Corydalis solida* was omitted in the former part of these Notes, because I hear from the Dean of Winchester that it is no longer to be found at Wickham, as recorded on his authority in the 'English Flora.' The station I think the Dean told me was the site of an old garden, and of course inadmissible. *C. lutea* is found here and there subsontaneous on old walls, but too sparingly and imperfectly established to find a place with propriety as a naturalized denizen of the Hampshire Flora.

Fumaria officinalis. Very frequent. A shadow of suspicion has been cast on the indigenous origin of the fumitory, in common with other weeds that usually affect cultivated ground, or are chiefly found following the footsteps of man. I however remarked the present spe-

cies to abound on the wildest part of that wild waste called Langwood Warren, near Winchester, where spade or plough never contended against its all but hopeless sterility.

Fumaria capreolata, add, At Oakhanger, near Selborne.

———— *Vaillantii*. A specimen of this, or of *T. parviflora*, or *micrantha*, was found by Dr. Salter in a field near Weeks's by Ryde, a few years back, but the example which he kindly communicated to me has been accidentally lost, nor have I been able to rediscover the plant there or elsewhere in the island.

Nasturtium officinale. Abundant in the county and island.

Cardamine pratensis, *hirsuta*, and *sylvatica*. The last a variety probably of the second; are all abundant here and on the mainland of Hants.

Sisymbrium officinale. Abundant.

———— *Thalianum*. Copiously in fields in the Isle of Wight, and perhaps in the county generally, but very rare about Fareham, according to Mr. Notcutt.

Alliaria officinalis. Abundant in hedges and on grassy banks all over the Isle of Wight, and I believe the county also.

Brassica Napus. Common in cultivated fields and fallows over the island and county. I am unable to say whether or not we possess *B. campestris*, as the plant so called has always eluded my search, if indeed there exists any such thing apart from *B. Napus*, but its variety β ., as it is now considered, *B. Rapa*, *L.* (turnip), is occasionally naturalized, or rather has strayed from the fields on to the adjoining banks in some places.

———— *nigra*. Abundant in many parts of the Isle of Wight, but not universally distributed. Common about Ryde, &c. I am not prepared to state the distribution of this and the following in the county at large.

Sinapis alba. Cultivated and waste places, but not general in the Isle of Wight. Very plentiful at Ventnor. On sea-banks in Sandown Bay, &c.

———— *arvensis*. Far too profusely in cultivated fields everywhere.

† *Koniga maritima*. Naturalized here and there on and under walls, and in waste ground by the sea-shore, but in all instances obviously escaped from gardens and scarcely persistent.

Draba verna. Walls, banks, and pastures. Abundant in the island and county. On Ryde Dover, &c. Hardly known about Fareham, Mr. W. L. Notcutt.

Cochlearia officinalis. Possibly not uncommon in the county, but

certainly very rare in the Isle of Wight, where I have found it but once on an eastern fence with *C. danica* on High Down Freshwater, directly above and at the back of Watcomb Cave, but in no great quantity. The var. *β. grænlantica*, Sm., I have on the authority of my friend the Rev. G. E. Smith, as growing on the edge of Freshwater Down, but not having yet fallen in with this alpine form myself, I am inclined to believe it was inadvertently named in place of the commoner state of *C. officinalis*, and that his station and mine are identical.

Cochlearia danica, add, Plentiful on the South Beach, Hayling Island.

——— *anglica*. Muddy places near the sea in the county and island, but rare, at least in the latter. Shores of Brading Harbour, Yarmouth; Mr. Snooke. Betwixt Southton and Netley.

‡*Camelina sativa*. See *Alyssum calycinum*, p. 209. Of this I have seen no specimen, and from the circumstance mentioned under the head now quoted, of its being mostly if not always in this country the associate of flax, I am in doubt as to the accuracy of the fact of its occurrence near Alverstoke. N. B.—*Lepidium sativum* occurs here and there partially naturalized in this island on banks, waste ground, and by road-sides at Sandown, Ventnor and elsewhere, but is very fugitive in all its casual stations.

Crambe maritima. In various places along the south shore of Hayling Island, very sporadical, though truly indigenous. A single specimen found by me some years back, on the sandy beach at Norton Freshwater, western coast; Dr. Pulteney in Hamp. Rep.

Cakile maritima. Sandy shores of the county and island; extremely common, Sandown Bay. Abundant near the south-west corner of Hayling Island.

Raphanus Raphanistrum. Not uncommon, and sometimes abundant in cultivated fields in the Isle of Wight, and I presume throughout the county. Flowers sometimes white, and with the veining of the petals very faint and inconspicuous.

Frankenia lævis, add, Very common in mud flats on Hayling Island, Emsworth, &c.

Drosera longifolia, add, Short Heath Oakhanger, near Selborne.

——— *anglica*. Ramsdown, near Heron Court, Christchurch, Mr. Curtis (in litt.), Icon ad exemplar ex loco in Brit. Entom. x. t. 473. Mr. C.'s exquisite figure represents the true *anglica*, which I have not seen from this county, and inserted solely on the authority

of Pulteney, which is thus corroborated for a plant of decided rarity in the south of England.

Parnassia palustris, add, In various parts of the (New) Forest ; Mr. J. S. Mill in Phytol. i. p. 92.

Dianthus prolifer, add, In considerable plenty on the south beach, Hayling Island, along the way to the Passage House, October 3rd, 1848, and still in flower. Cumberland Fort, Portsea Island ; Dr. Macreight, Man. Brit. Bot.

—— *Armeria*, add, Wicor Hard ; Mr. W. L. Notcutt.

Silene maritima, add, Abundant on Hayling Island. A variety with the margin of the leaves cartilaginously spinulose occurs occasionally in the Isle of Wight.

Lychnis Flos-cuculi. Very frequent in wet places.

—— *Githago*. Very common, and often far too abundant amongst corn and other crops.

Spergula nodosa, add, Sandy ground in the New Forest ; Mr. T. B. Flower !

Sagina procumbens. Common everywhere, on and under walls in dry pastures, &c.

—— *maritima*. Rare ? Sandy shore, Gurnet Bay, and at St. Helen's, Isle of Wight. At West Cowes, near the Yacht Club House ; Dr. Martin !! Probably not uncommon on the Hampshire coast.

—— *apetala*. Corn-fields and dry pastures frequent, at least in the island. Abundant near Ryde.

Alsine rubra. Common on dry sandy ground. Profusely on rocky ledges behind Bonchurch, with *Crithmum maritimum*, and on the chalk cliffs at Freshwater Gate, Isle of Wight. The plants in these maritime situations preserve their character as regards the shape and roughness of the seeds, length of the capsules, and aristate leaves, but the latter are semi-cylindrical beneath; or nearly so, the plant very much branched, forming dense tufts, the roots thick (perennial?) and as well as the base of the stems, subligneous. This form accords with the description of *Arenaria macrorhiza*, Req. in Bartoloni's Flora Ital. iv. p. 687. *A. rubra*, γ . *macrorhiza*, Moris, Fl. Sard. i. p. 278. *A. media*, β . *macrorhiza*, D. C., in Duby Syn. ii. p. 1025, and which Moris judiciously considers a mere variety, assigning very sufficient reasons for his opinion.

—— *marina*. Salt-mashes and waste ground by the sea, common. A good species ?

Stellaria uliginosa. Frequent in wet and boggy ground.

Stellaria graminea. Abundant over the county and island. Var. *β. intermedia*, Gaud. Fl. Helv. iii. p. 185. Petals much longer than the calyx; leaves more or less glaucous. Near Westridge, Isle of Wight.

——— *holostea*. Profusely bedecks our hedgerows with its pure, starry blossoms in spring and early summer. Var. *β. laciniata*. Petals scarcely equalling the calyx in length, deeply divided almost to the base into three segments, of which the middle one is linear-lanceolate, the two exterior with a tooth on the inner side. Quarr Copse, Binstead, Isle of Wight, May, 1838. Of this singular variety I found a good many specimens, and at first imagined the lacinated appearance of the petals to have resulted from mutilation by insects, till the regularity of the monstrosity in all, which I traced in the bud, proved to be the work of Nature. In this state the flowers bore some resemblance to those of *S. uliginosa*. A form very similar, if not the same, is recorded in the 'Phytologist' (Phytol. i. 264) for July, 1842, as found near Pont-y-Pool, by Mr. J. Bladon.

Cerastium glomeratum and *C. triviale*. Very common in pastures, by road-sides, and in waste places over the county and island.

——— *semidecandrum*. On waste, sandy ground, wall-tops, &c., very common in spring and early summer in the Isle of Wight, as on Ryde Dover, &c. A most variable and perplexing plant, on the different forms of which botanists have wasted much time and ingenuity in endeavouring to find permanent marks of distinction where none exist. We need but compare the descriptions and figures of those who have laboured the most to elucidate our common *Cerastia*, to be convinced that not one has seized upon any absolutely fixed mark of distinction betwixt *C. triviale*, *semidecandrum*, *tetrandrum* and *pumilum*, the very multiplicity of their synonyms, and the elaborate commentary of Fries (Nov. Fl. Suec.), who has still further augmented the difficulty attending their study by increasing the species and changing and mixing the names first imposed, prove how little writers have advanced in assigning to each its precise limits. Mr. H. C. Watson's pleasant but somewhat caustic remarks in 'Cybele Britannica' on the above species, with two others of more recent creation, are exactly in accordance with my own views of their validity, which have not been hastily assumed, as a few years since I devoted much time and pains to the study of the British species and varieties of this genus inhabiting the south of England. The result of my inquiry, embodied in notes and descriptions too multitudinous for insertion here, even in a condensed form, was only increased perplexity,

and of course augmented scepticism and distrust of the labours of others. Still I am willing to give brevet rank to the five veteran *Cerastiums* specially introduced into these Notes, and to call them species by courtesy, without joining the opprobrious epithet of "book" to them, trusting to time either to confirm their claim to the honour, or to revoke the grace which bestowed it. Yet I shall protest against granting a like degree to any more of the scions or offsets from stocks of such dubious character and deserving, and rejoicing that one of these younger branches has quietly disappeared by a process of self-absorption, devoutly hope that another and only remaining one, still dark green and flourishing where the departed so lately bloomed in new-born dignity, will make its exit from the court of Flora in the same easy and agreeable manner without compulsion, as being too nearly allied, like most, I fear, of the others we are treating of, to that confessedly little-renowned and retiring individual, *C. obscurum* of Chaub., to the paternity of which personage, whoever he may be, it seems under no great obligations for its name or reputation in the vegetable world.

Cerastium tetrandrum. On dry pastures, banks, wall-tops and sandy heaths, frequent in the Isle of Wight, and perhaps in the county generally. On Ryde Dover. I believe my plant to be exactly that of Curtis, on a renewed examination of my specimens so named in 1838.

—— *pumilum*. Curt. ? Sandy places rare. Abundant on the sandy fence of the Ferry Boat Inn, opposite Bembridge, Isle of Wight, April, 1842. I cannot now quite answer for the exact correspondence of my plant with the *C. pumilum* of Curtis, as I at that time considered it, what I still think it likely to be, a mere variety of *C. semidecandrum*, but my notes express no doubts of their identity, and I was extremely cautious about coming to conclusions until after repeated careful comparison of the living plants with the best and most authentic descriptions and figures. At that date I was not so much in the habit of preserving specimens of what I looked upon as trivial varieties as I have since been, and therefore I cannot now renew the comparison of my own with Curtis's *pumilum*, but having quoted his figure in 'Flora Londinensis' without a ? after it in my MS. notes, which it was my constant rule to do where the least doubt remained on my mind, I fell pretty well assured of their agreement. It may assist the advocates for retaining this and the remaining forms under their distinctive names, in coming to a conclusion on the subject of our Isle of Wight *C. pumilum*, to add what I considered,

though not without some uncertainty, as a synonym and figures of the island plant. *C. glutinosum*, *Fries*, Nov. Fl. Suec. ed. alt. p. 132? *Reichenb. Iconogr. Bot. ii. t. 181, fig. 315, 316?* (*C. semidecandrum* of that author). In my Ryde specimen of *C. tetrandrum* the membranaceous margins of the sepals vary extremely in breadth, even on the same plant, they are mostly broader on the alternate segments, at one time very wide, at another nearly or quite obsolete. Flowers by far most frequently four-cleft, with four stamens and as many styles, sometimes five-cleft, with five stamens, and four-cleft on the same plant; whilst not unfrequently I find four-cleft flowers with five stamens and only four styles. Certainly the bracts are not scarious in any of my specimens of *C. tetrandrum*, as Mr. J. Woods has well remarked in his tour in Brittany,* which I presume Mr. Babington means to express by the term "herbaceous." My own impression after much careful investigation is, that *C. tetrandrum* is a dwarf maritime state of *C. semidecandrum*, which last may itself, as Mr. W. Wilson suggests, prove to be a modification of *C. viscosum* (*C. triviale*), as it is difficult to assign a character to the one which is not occasionally assumed by the other. An extremely humble plant of this genus, not an inch high, with four- (rarely five-) cleft flowers, spreading in the form of a cross, grows profusely on our downs and short pastures, which are quite enamelled with it in the spring, and this I have been in the habit of calling, I know not with what propriety, *C. tetrandrum*, though probably quite as near to any of the others we have been speaking of.

Malva moschata, add, Common at Appleshaw. Not unfrequent at Selborne.

Hypericum hirsutum. Extremely undant in woods and thickets in various parts of the Isle of Wight and mainland, especially on the chalk.

—— *elodes*, add, Profusely in the boggy parts of Short Heath, at Oakhanger, near Selborne.

Geranium pratense, add, Plentifully along the banks of the brook and in damp meadows adjacent betwixt the Priory Farm and Oakhanger, near Selborne, following the winding of the stream for nearly half a mile, and still partially in bloom, September 17th, 1848. Observed in a few other places about Selborne.

Radiola millegrana, add, On Short Heath, near Selborne. Wolmer Forest. In cart-ruts on Parley Heath; Mr. Curtis.

* Hooker's Comp. to Bot. Mag. ii. p. 263.

Ononis antiquorum? add, This, which is the *O. spinosa* of Koch, I find abundant in many places along the coast betwixt Emsworth and Portsmouth, and on Hayling Island.

Trifolium medium. I searched carefully during two seasons for this species in Dr. Salter's station in Firestone Copse, from which it appears to have vanished completely.

——— *glomeratum*, add, On the bank in Stokes Bay, with *Lotus angustifolius*; Miss G. E. Kilderbee!

Lathyrus sylvestris, add, Abundantly near Selborne, and with very narrow leaflets on a steep bank at the west end of Little Dorton (Beech-hanger), not far from the church.

N. B.—*Vicia Bithynica* has been erroneously given as a Hampshire species in Hooker's 'British Flora,' as I learn from Mr. Borrer. It is nevertheless a likely plant to occur, and should be looked out for, both inland and on the coast, along which last *Trifolium maritimum* and *Vicia lutea* may be reasonably expected.

Potentilla argentea. In a lane about one mile from Liphook, on the road to Haslemere; Miss Lovell!

Prunus insititia. A variety of the bullace of a transparent red or yellow colour grows in a field hedge at Whitewall's Farm, Wellow, Isle of Wight.

——— *Avium*, p. 284. For "red cherry" and "black cherry" read "merry," that being the country name in this and other parts of England for the fruit of the wild cherry (*mérisés, mérisier*, Fr.) or gean tree of Scotland (*guignes, guignier*, Fr.).

[To be continued].

W. A. BROMFIELD.

Eastmount House, Ryde,
Isle of Wight, October, 1848.

ERRATA.

P. 271, line 10 from top, for *gaze* read *gage*.

„ line 26, for *cover* read *our*.

P. 273, line 9 from top, for *mere* read *more*.

P. 274, line 25 from top, for *Widely* read *Widley*.

P. 275, line 11 from top, for *bank-hedges* read *banks*.

P. 276, line 1, for *Kenner* read *Kennerley*.

„ line 7, for *Wrickham* read *Wickham*.

P. 277, last line, for *Ryde Down* read, and where it occurs, *Ryde Dover*.

- P. 281, line 4 from bottom, for *Benbridge* read *Bembridge*.
 „ line 3 from bottom, for *it is* read *its*.
 „ line 2 from bottom, for *companions* read *companion*.
 P. 282, line 2 from top, for *Brightstone* read *Brightstone*.
 P. 283, line 16 from top, for *keeksies* read *kecksies*.
 „ line 22 from top, for *formed* read *devised*.
 P. 284, line 3 from top, for *domesticus* read *domestica*.
 „ line 25, for *distinguishable* read *undistinguishable*.
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BOTANICAL SOCIETY OF LONDON.

Friday, October 6th, 1848. — J. Reynolds, Esq., Treasurer, in the chair.

Mr. G. S. Gibson exhibited specimens of *Melilotus arvensis* (*Wallr.*), collected in the neighbourhood of Saffron Walden, Essex, which appear to be an identical species with *M. Petitpierreana* (*Willd.*), except that the latter was founded on a white-flowered variety, according to Koch's Synopsis, although other German botanists label the yellow-flowered states by the name of *Petitpierreana*. Mr. Gibson explained the distinctions between the new species and *M. officinalis*, with which the yellow flowers might cause it to be confused, but in technical characters it is otherwise more allied to *M. alba* (*Des.*), and from which the white-flowered variety of *M. Petitpierreana* will with difficulty be distinguished if it should be found in England.

Mr. Thomas Moore communicated a paper, being "Notes on two varieties of *Pteris aquilina*."—*G. E. D.*

On the Occurrence of Euphorbia salicifolia as a Naturalized Plant in Forfarshire. By GEORGE LAWSON, Esq.

In introducing to the notice of your readers a new candidate for admission into our list of *naturalized species*, I am aware that I may draw upon myself the invective denunciations of the exclusive party, and I therefore beg leave to express a hope that we may have as little ill humour on the subject as possible, however great may be the difference of opinion that may exist thereon. Having expressed this hope, allow me next to mention that *Euphorbia salicifolia* is naturalized with us here, although it is not so in botanical books; I say

naturalized, and wish to be understood that I do not mean imperfectly naturalized nor temporarily so. The station for the *Euphorbia* is in "Mains Flowery Den," about two miles north from Dundee, in Forfarshire, and any visitor will easily find the plant on the north bank of the Den, nearly opposite to the Castle, and on the east side of the old burying-ground. As a naturalized plant it has been known at this station by the botanists of the district from time immemorial,* and while we may look to its proximity to the old castle ruins as a conjectural proof of its not being indigenous, we may at the same time, with some degree of safety, conjecture that, if the histories of both the castle and the *Euphorbia* are not coeval with one another, the latter has at least dwelt in its present place since those days, long gone by, when resounded, with sounds of mirth and music, the desolate walls that now softly echo the gentle love-coo of the dove. And if we thus consider the naturalization of the plant to have taken place at a period so remote, and farther, the undeniable facts that it is now firmly established, plentiful, and is in a thriving condition, and depending in no way upon mankind or unnatural circumstances for a continuance of its existence, then we have a *plena probationis* of its right of record as a naturalized species.

It will be well known to those acquainted with the Den of Mains (through books or otherwise) that it contains a host of plants that cannot be considered as natives, nor in some cases, indeed, as quite naturalized. Many of these are, I believe, the remains of a garden that once existed in the Den; but the *Euphorbia* had its existence, I am informed creditably, prior to that garden; and although *Hieracium aurantiacum* and some others have disappeared from the place, and *Viola odorata*, with, perhaps, one or two *et cæteras* of imperfect naturalization, appear on the eve of doing so, yet there is not the slightest doubt of the permanency of the *Euphorbia*; nor do I fear much the rural improvements which have been begun upon the Den (one of which, by the way, is the *attempted* (!) unmerciful exclusion of vasculum-bearers and other visitors); for the *Euphorbia* bids fair to withstand a good deal of the ill-usage and exterminatory efforts of the rightful owner of the soil (should these be attempted), in like manner as Dundee naturalists bid defiance to the never-ending array of "trespass" tickets and built-up bye-ways that hem in the smoke cloud of "bonnie Dundee."

GEORGE LAWSON.

Stirling, October 9, 1848.

* One botanical friend of mine (Mr. Palmer) has himself known it as abundant as it now is for forty years.

THE DUNDEE NATURALISTS' ASSOCIATION.

Watt Institution Buildings, Dundee, September 5, 1848.—Mr. Lawson, President, in the chair.

The chairman produced several specimens showing diseases in wheat and rye, which had been sent him by Mr. E. J. Lance, of Bagshot, Surrey; and made some remarks upon them. He likewise laid upon the table a specimen of a white-flowered variety of *Erica cinerea*, gathered in Fifeshire by Miss Jessie Jackson.

A communication from Mr. Wyllie was read, mentioning that *Convolvulus arvensis* is not wholly exterminated from the Constitution-road, Dundee, as stated by Mr. Gardiner in his Forfarshire Flora. A fresh specimen gathered at the station referred to accompanied the communication. The President stated that although this plant is somewhat rare in the vicinity of Dundee, he had pleasure in communicating an unrecorded station, viz., by the side of the Arbroath-road, about four miles east from Dundee, where he found it this season in some abundance and growing luxuriantly.

A letter from Mr. Anderson to the President was read, communicating a new station in Forfarshire for the very interesting *Linnæa borealis*. The station is thus described by Mr. Anderson:—"Hill of Strathcathro: a little to the south of a cart-road that runs along the top of the hill, and bearing due south of the Strathcathro House, growing among roots of birch and Scotch fir, and within what seems to have been a square enclosure at one time, covering a space about twelve yards in diameter."

A paper by Mr. Kerr was read, on "Discovery of Fossil Fish and Shells, &c., in the clay-pits at Carcary, on the estate of Southesk, March, 1848."

Mr. Flight presented a specimen of *Knautia arvensis* in a state of luxuriance, wherein large *leaves* were produced from the flower-head.

The President gave an account of botanical rambles in Forfarshire and Kincardineshire.

Mr. Ogilvie presented specimens of the following Fungi new to the county:—

Two species of *Sphæronema*, "referred by Fries to *Sphæria herbarum* and *S. complanata*, but a distinct genus."—*Berkely*.

Sphæria conica. On the nettle, Lawhill.

Cyphella cupula. On dead stems of the nettle, Baldovan.

Dindryphium curtum. On dead stems of the *Senecio Jacobæa*,

Baldovan. "Very interesting, the genus new to Great Britain."—*Berk.*

Sphæria lirella. On dead stems of *Pteris aquilina*, Sidlaw hills.

Sphæria sp. "Undescribed with very pretty fructification."—*Berk.* On dead stems of an umbelliferous plant.

Mr. Ogilvie likewise noticed a new station for *Sclerotium durum*, which he found on dead stems of *Geranium phœum*, Den of Mains. He also mentioned a new station for *Dicranum cerviculatum*, viz., Peat bog, Sidlaw hills. The only previous authority for this moss in the county is that of Don, who mentions no locality.

Mr. Jackson exhibited two fine specimens of the common otter, which had been recently taken at the stream of Dighty, a few miles from Dundee.

A packet of specimens was announced from Mr. Anderson, of Brechin.

Mr. D. Campbell, Fortingale, Perthshire, was elected a fellow.—*G. L.*

October 3rd.—The annual meeting of this Association was held this evening, Mr. Ogilvie in the chair.

The Secretary read the report of the Society's proceedings for the past year, after which the following office-bearers were elected, viz., Mr. W. M. Ogilvie, President, Mr. John Flight, Secretary, and Mr. David Jackson, Treasurer.

A communication was then read from Mr. George Lawson, being notes of various Fungi, found by him in Forfarshire, and which are new to the county. The following are the species enumerated by Mr. L., viz. :—

Nidularia campanulata. In flower-pot, Crescent Nursery, Dundee.

Uredo apiculata. On leaves of *Carlina vulgaris*, near the Red Head, east coast.

Hysterium melaleucum. On withered leaves of *Vaccinium Vitis-idaea*, Sidlaw Hills.

Puccinia Violæ. On leaves of *Viola canina*, Sidlaw.

Rhytisma Urticæ. On dead stems of *Urtica dioica*, near Mains Castle.

Botrytis parasitica, var. ? On flower-stem of *Spiræa ulmaria*, Den of Mains.

Corticium craterium. On dead stems of a *Ribes*, Den of Mains.

Tremella virescens. On dead stems of larch, Sidlaw Hills.

Stictis radiata. On dead branches of *Sarothamnus scoparius*, Sidlaw Hills.

Phoma, nova species? On dead stems of *Sarothamnus scoparius*, Sidlaw Hills.

Rhytisma Andromedæ. On leaves of *Andromeda polifolia*, in gardens.

Merulius lachrymans. In houses, various parts of Dundee.

Lasiobotrys Linnæa. Found on specimens of *Linnæa borealis*, received from Mr. Anderson, and gathered by him on the Hill of Strathcathro.

Most of the names had been authenticated by the Rev. M. J. Berkeley, and specimens were exhibited from Mr. Lawson of the various species mentioned.

A beautiful specimen of the death's-head hawk-moth (*Sphinx Atropos*) was exhibited from Mr. Jackson, captured by him in the neighbourhood.

A vote of thanks was then tendered to the retiring office-bearers, and the meeting separated.—*W. M. O.*

Notes of a cursory Examination of the Botany of Colvend, Kircudbrightshire, in September, 1848. By PETER GRAY, Esq.

THE middle of September is not the most suitable period of the year for botanical investigation; but one thing after another delayed so long, an excursion I had meditated for June, or July at farthest, that, ere the requisite furlough could be obtained,

“The autumn sun was shining,
Grey mists were on the hill,
A russet tint was on the leaves;”

and though, to continue the quotation, flowers certainly were “blowing still,” so many had faded from the ken of the most Argus-eyed collector, that, had it not been for the kind assistance of the respected parish minister,—to whom I am indebted for the greater portion of the list which I append, and who to skill in and love for the “science of beauty” adds the utmost expertness and success in the taxidermist’s difficult art,—I should have departed as wise almost as I went regarding the flora of a district, which, from its situation and physical characteristics, as well as from what I had ascertained during previous short visits and partial explorations, I expected to prove, if not peculiarly rich in the scarcer vegetable productions, at all events differing

widely in those from the neighbouring red sandstone basin of Dumfries. And Mr. Fraser, who knows the ground better, and possesses much greater experience in such matters than I can pretend to, is of opinion that it will yet reward his industry with several rare species; *Primula farinosa*, for example, which grows on the opposite side of Solway, within sight of his parish.

The parish of Colvend extends along the south-eastern coast of the Stewartry of Kirkcudbright, nearly from the point of Southernness to the estuary of the river Urr. It is bounded on the north and north-west by the group of granitic hills which occupies, with the exception of a narrow border along the bed of the Nith and the shore of the frith that receives its waters, the entire south-western corner of Kirkcudbrightshire. These hills are generally rounded in the centre, or approach in form to flattened domes, rising at one point to the height of 610 yards, and again appearing to the west of the Urr for a short distance. The granite of which they are composed "is usually of the variety termed sienite, a compound of gray quartz, grayish white or rarely red felspar and green hornblende, often linearly disposed, with black or brownish mica not unfrequently added to these ingredients, and in many stations passing into the regular granite."

Along the shore the argillaceous strata so generally diffused over the whole south of Scotland show themselves in a belt of greywacke, narrowing as we advance westward, and offering a more varied and interesting vegetation. A line a little to the northward the parish road may be taken as the boundary between the primary and transition rocks. A short way to the east of where the water of Southwick flows upon the sand, the beach, previously gently sloping to the tide, becomes precipitous, the abraded hills which now rise along the shore and extend westward far as the eye can reach, presenting to the sea precipitous cliffs, ranging from 30 to 300 feet in perpendicular height. Around Douglas Hall or Sandyhills Bay, a gap in the "heughs," as the cliffs are locally designated, is occupied by numerous sand-hills, perforated everywhere by rabbit and hornet-burrows, and bound together like the Dutch dykes by the tenacious roots of a thick turf of *Ammophila arundinacea*, glinting in its barer places with the pretty flowers of *Erodium cicutarium*. *Ruppia maritima* grows abundantly in the saltwater pools nearer the sea; and, on the road to the right, a single patch of *Allosorus crispus*, in the chinks of a dry stone dyke, which I did not disturb. Proceeding in a westerly direction beneath the heughs, which is practicable at low water, you find their shelving faces decked in many parts with

Crithmum maritimum, and the dark green fronds of the elegant *Asplenium marinum*, although both, but especially the former, are in most cases provokingly out of reach; particularly about the mouth of the Piper's Cove, one of the lions of the shore, the name of which, according to a veracious legend, is derived from the adventure of a musician, whose progress (although he seems to have been unable to find his way back, or to have been so well treated where he got at last that he remained) was traced by the sound of his instrument some five miles across the country, and finally lost under the goodwife of Barnbarroch's hearthstone. The cove is in reality an ancient copper working, this metal being found all along the coast in veins which penetrate the greywacke, and the miners having taken advantage, in their labours, of a natural fissure in the rock as far as it went. A little farther, where the waves have worn an arch in the opposing rocky rampart, the cliffs attain their maximum height, and their picturesque appearance here is greatly enhanced by the presence of one or two cream-coloured goats, the property of a neighbouring farmer, but of

“The wild flock that never needs a fold,”

reposing midway upon a narrow ledge, poising themselves on a mere point of rock at a dizzy height, or, in following one another with the most perfect *nonchalance* across or adown precipices, performing feats beyond the ability of the most agile mountebank in the world. Below Port Ling there is another break in the rock-bound coast. Here I found, growing among heaps of boulders, chiefly granitic, *Rubus cæsius* and *R. suberectus*, *Geranium sanguineum*, *Solidago Virgaurea*, &c., among which and side by side with the dark shining fruit of the blackthorn, and of *Rosa spinosissima*, both of a large size, hung festoons of honeysuckle in flower. Both the brambles are, I think, pretty common between the cliffs and the sea all along the shore westward from this point, especially *R. cæsius*. In boggy ground, here, also, adorned with the contrasted blue and white of *Scabiosa succisa* and *Parnassia palustris*, I observed plenty of the foliage of *Anagallis tenella*, not a common Scottish plant, but far from scarce both on this shore and that of the estuary of the Nith, with a good few plants of *Lycopodium selaginoides*. Beyond Port Ling, for some distance, the rocks become more distinctly granular, and at Blackneuk have all the appearance of a coarse sandstone, containing fragments of a more compact structure, and seamed in such a way both in a horizontal direction and vertically, that at a little distance they look like

some huge remains of Cyclopean masonry. Here large patches of *Rosa spinosissima* occur, with *Astragalus glycyphyllus*, *Carlina vulgaris*, *Gentiana campestris*, *Sedum anglicum* and *acre*, and *Scutellaria galericulata*; and close upon the sea I found on one occasion *Scolopendrium vulgare*, *Asplenium marinum*, and *A. Adiantum-nigrum*, one patch of each, growing very sociably together on the ground, sheltered from the salt spray under a great rock. On the cliffs at Port o'Warren, on this and a former occasion, I gathered *Raphanus maritimus* and *Carex remota*, and on the beach *Glaucium luteum*, not a scarce plant on this coast. The hill above furnishes a magnificent prospect. To the south you have the boundless ocean, along which, from St. Bees Head to where the symmetrical peaks of Mona appear in the blue distance,

“Set like a sapphire in the casing sea,”

fleets of merchantmen are occasionally visible fringing the horizon. On the left the eye takes in at a sweep a fine panorama of the English coast, from St. Bees to Bowness, presenting a rich and cultivated seaboard, rising from the wave-brink and the bright towns that border it with gentle undulations upward to the lofty Skiddaw, broad Saddleback, and the rest of the massive group which forms the back-bone of “rocky Cumberland,” exhibiting, when the sun brings out their iron forms in relief, fearful precipices on their scarped sides one almost shudders to look upon, although diminished by distance to the dimensions of mountains of faery; again, on the Scottish side, across the narrowing frith, the expanse of sand that constitutes the point of Southerness, with its tall white lighthouse; next a rich carse land hedged in from the sea breeze by belted trees; then the brown and rugged cliffs, sweeping past to Hestan and the Airds of Balcary, and chafed by the restless surge, beyond which, and where sunshine and shadow are chasing each other over a smoother sea, but diversified by breakers margining treacherous sand-banks, flocks of white-bosomed sea-fowl are scattered like stars in a lower firmament; and, turning, your view is bounded behind by the granite hills from Criffel to Bengairn, wild and bare, but relieved from monotony by cottage, hamlet, and silent tarn. Near the farm-house of Port Ling I met with several plants of *Sanguisorba officinalis*, of a variety apparently analagous to that of *Plantago lanceolata* with globular heads. The majority of these had only one head of flowers, and that much rounder than usual. The coast hence to the Urr, besides most of the plants

already mentioned, furnishes abundance of *Allium vineale*, with *Verbascum Thapsus* and *Habenaria albida* about Glenstocking.

From Castlehill, upon the Bay of Urr, where the trenches of an ancient fortification are still apparent, on your way up the river Urr, you meet with, besides many of the more ordinary littoral plants, *Schoenus nigricans* and *Blysmus rufus*, between Glenluffin and Saltflats, and *Zostera marina* betwixt the latter and Roughisle, an appropriately named islet in the estuary. Passing on betwixt the Mark and Moat hills, the latter close to the shore and surmounted by some slight remains of one of those curious and very ancient vitrified forts, the execution of which the Scottish peasantry usually ascribe either to Auld Michael, the Pechts, or to one older and more knowing than either, the path, now winding fairly among the granite, conducts to a point overlooking a piece of the finest scenery in the entire south of Scotland, comprising the embouchure of the Urr, about three quarters of a mile in breadth, above which you stand at just the proper height, with Roughisle, and, on the opposite side a peninsula of Almoness point, couching as if to guard the entrance to the estuary; beyond, the Isle of Hestan standing out in the firth; the estuary itself, irregular in outline, indented with baylets and jutting headlands, like a Highland loch; the hills on either side, bold and precipitous, on the western shore remarkably so, wooded to the water's edge, and rising to a great height in Screel and the still loftier Bengairn. I saw it under very favourable circumstances. It was one of the finest and most pellucid days in autumn; above, massive but almost transparent cumuli were reposing in a sky of the deepest azure; the sun was bright and warm, the air fresh and balmy; below, flocks of noisy gulls cooled their stilts at a picnic by

“The bright wide coming stream
Of Solway's tide enlarging;”

the handsome peacock butterfly, the glowing *Lycæna*, and *Hipparchia Mægaris* of more sober plumage, flaunted and flickered through the surrounding wilderness of red heather and golden whin; beetles dashed past in glancing mail of steelly blue; and

“Wild bees murmured in their mirth
So pleasantly it seemed the earth
A jubilee was keeping.”

About a mile and a half farther up the river, Colvend is bounded by the adjoining parish of Urr.

Down the middle of the parish there extends a chain of five lochs, the most westerly of which drains its surplus waters into the Urr, while the Solway receives those of the other four. On the margin of the lowest of these, Barnhourie Loch, I found abundance of *Hypericum elodes*, and *Carum verticillatum* in its neighbourhood. The one upon the road-side near the manse, styled the Manse or White Loch, the latter name applied, I presume, on the *lucus a non lucendo* principle, as its waters are black as night and its bed peat, furnishes *Typha angustifolia* and *Lobelia Dortmanna*, the latter much taller and stronger than I ever remember to have seen it; and on its margin *Osmunda regalis* and *Lysimachia vulgaris*, the latter rare in Scotland, and the former a grateful sight anywhere. The next is a remarkably handsome sheet of water, of irregular outline and possessing a pretty little wooded island, but botanically barren. On the hill which overlooks it and from which it is best seen, the only remarkable thing I observed was *Calluna vulgaris*, *fl. alb.* The other lochs I have never examined.

The following is a list of forty or fifty of the rarer flowering plants and ferns of the parish, for most of the stations for which I am indebted to the source acknowledged in my opening observations.

Anagallis tenella. All along the marshy ground bordering the sea-coast, and in many bogs inland. Abundant.

———— *arvensis*, var. *caerulea.* Came up in great abundance in a corn-field belonging to Mark S. Stewart, Esq., of Southwick, in the year 1843.

Agraphis nutans, *fl. alb.* On the glebe, Colvend, in many places.

Allosorus crispus. In a dyke opposite Sandyhills—one patch.

Allium vineale. Rocks beyond Port o'Warren and Glenstocking. Abundant, especially in the latter locality.

Asplenium marinum. Rocks by the coast. Plentiful.

Astragalus glycyphyllus. Sea-side, between Boreland and Barclay Hill; Blackneuk. Plentiful.

Blysmus rufus. Banks of Urr, between Castlehill and Glenluffin.

Botrychium Lunaria. Near Douglas Hall, and in many other places. Abundant.

Carlina vulgaris. Dry hills. Not very plentiful.

Convolvulus sepium. Road-side, farm of Millbank.

Corydalis claviculata. In many places.

Crithmum maritimum. Rocks by the sea-side from Douglas Hall to Barclay Hill.

Carex remota. Near Port o'Warren.

Calluna vulgaris, fl. alb. Hill above Smithland ; Castlehill.

Carum verticillatum. About Barnhourie Loch.

Drosera longifolia. Margin of Anchenshien Loch. Plentiful.

Equisetum hyemale. Near Barnbarroch School.

Eupatorium Cannabinum. Heugh of Laggan ; Port Ling. Very plentiful.

Glaucium luteum. Port o'Warren, Saltflats, and other places along the coast. Rather scarce.

Genista Anglica. Very common.

Gentiana campestris. Hills on the coast. Plentiful.

Hypericum elodes. In various marshes and ditches in the parish.

———— *humifusum*. Common.

Juncus maritimus. Mouth of the Urr.

Jasione montana, fl. alb. Near Clonyard.

Lobelia Dortmanna. Lochs. Abundant.

Lychnis viscaria. Rocks and cliffs near Port o'Warren.

Lycopodium selaginoides. Near Port Ling.

Leonurus cardiaca. Lochhouse. Not very plentiful.

Lithospermum officinale. Road-side nearly opposite Murfry, but nearer Southwick.

Lysimachia vulgaris. Shore of the White Loch and Barnhourie meadows. Not scarce.

Meum athamanticum. Plentiful.

Nymphæa alba. Lochs. Abundant.

Nuphar lutea. do. do.

Ornithopus perpusillus. In the greatest abundance in many fields, and by the road-sides.

Osmunda regalis. By the margin of the Manse or White Loch, and in a bog on the farm of Mark. Far from plentiful in either station.

Parnassia palustris. Beach near Port Ling. Abundant.

Primula veris, *P. elatior*. Douglas Hall Bay.

Rosa spinosissima. Douglas Hall, Blackneuk, and other places along the coast. Plentiful.

Rubus suberectus. Near Port Ling, &c.

———— *cæsius*. do.

Rhynchospora alba. Bog opposite Auchenlosh.

Raphanus maritimus. Port o'Warren. Sparingly.

Ruppia maritima. Near Sandyhills.

Samolus Valerandi. Near Glenstocking.

Scutellaria galericulata. Blackneuk, beach near Glenluffin, and by margin of Manse Loch. Scarce.

Schœnus nigricans. Sea-side near Glenluffin, abundant; and in different stations along to the village of Scaur.

Sedum Anglicum. Common.

—— *acre.* Blackneuk. Sparingly.

Salix pentandra. By the margin of the Manse Loch, and by the side of a ditch opposite to Jorr.

Typha angustifolia. Manse Loch. Abundant.

Vaccinium oxycoccos. In many bogs, and in considerable abundance.

Viola lutea. Hills near Barnbarroch.

I possess a specimen of *Lycopsis arvensis*, received from a friend and labelled Colvend. It does not occur in this neighbourhood.

Of the plants enumerated above, one or two, as *Viola lutea*, *Lithospermum officinale*, and *Leonurus cardiaca*, were as unexpected by me in Colvend as they are unknown in the vale of Dumfries. Neither have we *Schœnus nigricans*, *Osmunda regalis*, the two *Rubi*, nor several others; and the relative proportions of other and more frequent forms not specially noticed is not less striking, and not altogether, I think, dependant on the proximity of the sea. In conclusion, I may mention that although I gathered a considerable number of Algæ, I had not the fortune to find any excepting those common to all shores, such as, of course, the *Fuci*, *Halidrys siliquosa*, both varieties, *Furcellaria fastigiata*, *Delesseria sanguinea*, *D. alata*, &c.

PETER GRAY.

Queen Street, Dumfries,
October 10, 1848.

Occurrence of Filago gallica and other Plants at Berechurch, Essex.

By THOMAS BENTALL, Esq.

ON the 18th instant, Mr. Varenne and myself accompanied Mr. Forster on an excursion to the village of Berechurch, in this county, for the purpose of searching for *Filago gallica*. The plant I believe was first observed in this locality about six years ago by Mr. Garnons, and last autumn it was gathered by Mr. Varenne, and by him specimens were communicated to the Botanical Society of London. On reaching the first field where it was known to occur we were fortunate enough to find a considerable number of very fine specimens, and subsequently observed it growing plentifully in two other dry sandy corn-fields about half a mile distant. *Filago apiculata* and *Jussiiæ*

were both growing with it, and I may mention as a curious fact that in one of the fields which we examined are to be found all the known British species of *Filago*.

Another interesting plant of the neighbourhood, and one for which we have no other station in the county as far as I am aware, is *Galeopsis ochroleuca*; it was observed in some abundance last year by Mr. Varenne, in one of the fields where *Filago gallica* occurs, and had we visited the spot earlier in the season we should in all probability have met with it again.

Our stay at the place being limited to about two hours, we were obliged to confine ourselves almost entirely to the grand object of our visit; a few other things, however, were met with, perhaps not altogether unworthy of notice; amongst these I may mention *Gastridium lendigerum*, *Anthemis arvensis*, *Silene anglica*, and a very remarkable looking *Rubus*, apparently allied to *R. cordifolius* (*W. & N.*), having a naked stem, ternate leaves, and a long panicle.

THOMAS BENTALL.

Halstead, Essex, October 19, 1848.

On the Finding of Ornithogalum umbellatum, Linn., near Worcester.

By GEORGE REECE, Esq.

I HAD been aware for some years of a bulbous-rooted plant growing on Pitchrop Ham, near this city, but could not be certain of the species, only seeing it in an immature state, for when the mowing grass was up I always lost sight of it, and after several ineffectual attempts at watching after it through Flora's season, I this year adopted the process of obtaining bearings upon the precise spot from different objects, and stepping the distance from certain points and noting it down, and thus I became successful at the flowering season in ascertaining the roots to belong to what is considered a very rare species, viz., *Ornithogalum umbellatum*, *Linn.*

I may observe that the *Ornithogalum umbellatum* is a most difficult plant to find at its flowering season, when its petals, which are striped with green exteriorly, are closed, which seems to depend much upon the state of the atmosphere amid the mowing grass which now has so much outgrown its more humble neighbour, particularly if a little wind be stirring so as to give motion to the surrounding herbage; for this season, although I was successful in finding it, I could not distinguish it when walking in a direct line towards it until, as I may

say, I came close upon it. Yea, when its snow-white starry petals are fully expanded to meet the rays of the cheering sun, the distance of a few short yards is sufficient to secure it from the searching eyes of the exploring botanist, at which time it is a most pleasing object, well calculated, when found, to arrest our zeal whilst we stop to contemplate its delicate whiteness ere we destroy the same by stooping to gather it for our herbarium.

Not so in spring; it is then quite a conspicuous object in localities where it grows, being at this period of the year much the tallest and of a very different green from the surrounding grass, when a kind of trigonometrical survey should be made, and bearings of the precise spot with some particular objects obtained and the exact distance therefrom noted down, which would not only prevent disappointment at the time for collecting it, but also injury to the mowing grass in searching for it; and doubtless such a process may be applicable to the finding of other plants of humble growth which are conspicuous in the spring, when they are little thought of, but are hid from our longing eyes and itching fingers by the over-growth of surrounding objects as the summer advances, when they are eagerly sought after but cannot be found from the causes before enumerated, which the above observations may in some measure, it is hoped, tend to obviate.

GEORGE REECE.

Worcester, October, 1848.

Remarks on the "Rubus leucostachys" of Lindley, Leighton (Flor. Shrops.), and Lees, and "Rubus nitidus" of Babington and Leighton's Fasciculus. By EDWIN LEES, Esq., F.L.S.

THE Rev. W. A. Leighton, in his elucidatory 'Notes on Shropshire Rubi,' in the 'Phytologist,' states, under *R. leucostachys* (Phytol. iii. 175), that "*R. leucostachys* of Lees in Steele's Hand-Book is, according to specimens from Mr. Lees, identical with *R. nitidus* of Bab. Syn. and the 'Fasciculus of Shropshire Rubi.'" With a suggestive modesty which I wish all botanical writers would try to imitate, as well as come up to his investigating ardour, my untiring friend does not say with bramble-like asperity that I have *blundered* in the matter, but implies that my conclusions are probably wrong, as being different from those of Mr. Babington.

I have almost come to the resolution to take no authority in bota-

nical matters save that of observation, for it would appear that a Professor's opinion, even on points he has made his peculiar study, are still liable to be demurred to, and even the dicta of Esenbeck, as stated in the 'Flora of Shropshire,' seem now quite disregarded. I feel obliged, then, to offer an explanation as to "*Rubus leucostachys*," and my connexion with it. When, twelve years ago, I was brushing among thickets of perplexity, Mr. Leighton most kindly forwarded to me a series of duplicate specimens of *Rubi* that had passed under the scrutinizing eye of Dr. Lindley, and been named by that eminent botanist after his own nomenclature in the then recently published 'Synopsis of the British Flora.' Among these specimens, which I cherished as authorities, was one of "*Rubus leucostachys*," which having identified with the growing plant, and recognized it as the form meant by Lindley in his Synopsis, I have ever since called by that name, and so distinguished it in Dr. Steele's 'Hand-Book of Field Botany.' Consequently the *Rubus* in question is the "*leucostachys*" of Dr. Lindley and myself, and substantially also that of the 'Flora of Shropshire,' though it appears that Mr. Leighton himself had added in his herbarium a specimen of *vestitus*, *W. & N.*, to the two named by Lindley as *leucostachys*. His description, indeed, must be taken as applying to Dr. Lindley's plant, as he expressly says, "Determined by Professor Lindley." To this bramble both Mr. Babington and Mr. Leighton *now* apply the name of *nitidus*, and here is the question to try.

Having all the same plant in view, it may be asked, was Dr. Lindley right in his primary assignation of the name *leucostachys* to it, or not? To answer this question throws us back upon Sir J. E. Smith, who first published *R. leucostachys* as a species, but deriving the name from M. Schleicher, a Swiss botanist, who sent him a specimen so labelled. I am not aware that Schleicher himself ever published a description of his plant, and hence Sir J. E. Smith in the 'English Flora' is the first authority for the name, and in the Smithian herbarium are now three specimens named *leucostachys*, which on a recent examination I find are all identical with the *R. vestitus* of *W. & N.*, nor do I see any material difference between them. Neither of these, however, appears to be the identical specimen of Schleicher, but a *Rubus*, sent from Henfield by Mr. Borrer, is ticketed "*R. leucostachys* of Schleicher," and this is certainly the common form of *vestitus*. It should be observed that when Smith published his 'English Flora,' the authors of '*Rubi Germanici*' had not proceeded to the *hairy* division of the brambles, as their book came out in fasciculi. They

seem to have been unaware of the plant of Schleicher and Smith on their parts, and no "leucostachys" occurs even as a synonym in the German work. Mr. Borrer next appears upon the scene, and in Eng. Bot. Supp. 2631, under the name leucostachys, really figures and describes *R. vestitus* of the German Rubi. In the third edition of Hooker's 'British Flora,' where the brambles are ably marshalled by Mr. Borrer, he describes leucostachys as from Eng. Bot. Supp., but gives a var. β . which he identifies with Dr. Lindley's *diversifolius*. No reference is made to the German Rubi by Mr. Borrer as to their *vestitus*. Professor Lindley having in the first edition of his Synopsis described both leucostachys and *diversifolius*, but no *vestitus*, now in his second edition continues them, and having certainly (as shown by Leighton's specimens and my own) our present bramble in view as leucostachys, blames Mr. Borrer for uniting *diversifolius* with it, and says that the latter "is surely a hundred times more different than leucostachys from *fruticosus*." This renders it clear that Lindley's leucostachys was no variety of *vestitus*.

Dr. Bell Salter (Phytol. ii. 105) has the merit of clearing up the obscurity as far as *R. diversifolius* of Lindley is concerned, by showing that Mr. Borrer's specimen of it, "had from Dr. Lindley's own plant in the Hort. Soc. Gardens," is truly *R. vestitus*. But Dr. Bell Salter makes no allusion to Lindley's "leucostachys," as being different to the leucostachys he himself had in view as "one of the commonest species about Selborne." It is also remarkable, if his "nitidus" be really the same as Lindley's "leucostachys," the plant now under review, that he lauds Dr. Lindley's description of nitidus as applicable to it in his first edition, but says in his second "he confounds it with *R. plicatus* under the misnomer of *R. affinis*." This seems very confusing, and it is scarcely possible that the same plant should be mentioned by Lindley under two different names. In fact, he refers the plant of which Leighton and myself have specimens as "the jagged-leaved form of *R. fruticosus*," and compares it on this account with the similar character of *rudis*, which is a very just comparison. These jagged leaflets, a character generally perceptible, are mentioned by Leighton in the Fl. Shrops., but are not alluded to in Dr. Bell Salter's description of his nitidus. I have ascertained from an inspection of the Smithian herbarium, that the *R. plicatus* of 'English Flora,' "common in hedges in Shropshire," and sent from thence by Mr. Williams, is really *this species*, which Mr. Leighton seems not to have been aware of; and in his description Sir J. E. Smith very correctly notices the leaflets as "acute or pointed, coriaceous, more or

less *plaited towards the margin*, strongly and unequally serrated, sometimes *jagged*; their under surface hoary and finely downy, but not white or cottony, strongly ribbed, with many fine, transverse, parallel, connecting veins." So that in this singular misapprehension of a common bramble, Smith is blamed by Lindley and Dr. Bell Salter as having described *R. nitidus* from wrong specimens; while if Mr. Babington be now correct as to *nitidus*, Smith had really described it under the name of *plicatus*! My own impression is, that Mr. Babington and Dr. Bell Salter are mistaken in their designation *now*, as Smith and Lindley have been before; and if we are to rely upon Esenbeck, his *R. nitidus* is, after all, but a variety of *plicatus*, which I really believe is the case. Acting, then, upon this belief, I will now proceed to a confirmation of the view I have taken.

The *nitidus* of Weihe and Nees in the Rub. Germ. is placed by them in their "Divisio prima," having the barren stem quite *smooth*—"caule folii ferè glabro," and it is evident they intend a bramble nearly related to *R. suberectus*, for they refer to Anderson's plant in the Linn. Trans., as well as the plate of *R. suberectus* in Eng. Bot. 2527. This plate could surely never be said to represent the bramble I have in view. They reiterate, too, in their general and particular description of *R. nitidus*, that the barren stem is *smooth*. Now the plant described by Dr. Lindley and myself under the name of *leucostachys* is at once cut adrift from *nitidus* by its *pilose* stem. Lindley has placed it in a division with the stems "distinctly downy or hairy," and describes the panicle as "very long, leafy, hairy." So I find the shoot of the year invariably clothed with scattered hairs, and *closely hairy at the base*. And here I would remark, that in doubtful cases the *base* of the barren stem should be examined, as towards the extremity of the shoot, even in hairy brambles, the pilosity often disappears; but in a true hairy or pilose bramble I have invariably found its stem *much more hairy at the base*, while in smooth-stemmed Rubi it continues smooth to the base, or in cæsious ones, more bloomy still below. The figure of *R. nitidus* in Rub. Germ. is assuredly very unlike the bramble I have in view, and sent to Mr. Leighton, and this Mr. Babington admits when allocating his plant (erroneously, as I conceive) in the suberect group. "The panicle is here considerably different from that of all the preceding species. It is much more compound, irregular, and often rather close, nor do any of our specimens quite accord with the figure in Rub. Germ. of this part." My own opinion decidedly is, that *no figure* in the Rub. Germ. distinctly exhibits the bramble before us; but in some points the description of

R. pubescens seems to agree with it, especially where it is remarked of the “*caules florigeri*,”—“*in inferiori parte pilosi, intra paniculam vero tomentosi*.” The leaflets, too, are said to be “*ovato-oblonga*,” and the “*marginē sub-crispa*” is a remarkable character of agreement, but as the figure fails, and specimens are wanting, no certainty can exist as to the plants entirely coinciding, and most probably they do not.

In this extremity, seeing that the plant before us has been always wrongly referred (for I cannot recognize it as *nitidus*), and that it is at any rate uncertain whether characterized at all in the ‘*Rubi Germanici*,’ I venture to propose a name and description that shall at once decide the matter, and leave nothing to doubt. As Professor Lindley has been much mixed up with British brambles, yet has hitherto escaped commemoration among them, and as this one in particular was described by him in his Synopsis, though with a wrong appellation, which I followed, it may I think properly bear his name, with the following diagnosis.*

Its locality will be with the arching and rooting *Rubi*, and most correctly, perhaps, the last in my Sub-div. iii. *RUBI VILLOSI*,—“*Stem angular, arching, closely hairy, with occasional setæ. Rachis very hairy.*”

R. Lindleyanus. (Lindley’s plaited-leaved bramble). Stem angular, closely hairy at the base, clothed with scattered, unequal hairs above; prickles hairy, straight, with long, pale points, rather crowded, but confined to the angles; leaves 5-nate on hairy and densely prickly petioles, with appressed hairs on the upper surface, canescent and pubescent beneath, leaflets all stalked, broadly elliptical, sharply serrate or jagged, crisp and plaited at the edges, cuspidate; rachis almost smooth at the base, hairy above; panicle long, densely hairy, with numerous spreading, cymose branches, very crowded and divaricated at the top, and leafy nearly to the summit; peduncles densely hairy, closely armed with long, pale prickles; calyx shaggy, its sepals more or less prickly, with glands hidden in the dense pubescence.

No figure can be indubitably referred to as representing this species.

* Before any one takes exception at this proceeding of mine, I beg him first carefully to compare my description, taken from the living plant, with that of *Rubus nitidus* in the *Rub. Germ.*, p. 20, combined with the reference to the figure of *R. suberectus* in *Eng. Bot.*, as representing *their* plant, and the assertion of Esenbeck that *nitidus* is but a variety of *plicatus*. Let my plant, too, be compared with their figure, t. iv.

R. plicatus, *Smith, Eng. Flor.* ii. 401 (certainly not *plicatus* of W. & N.) *R. leucostachys*, *Lindl. Syn.* 2nd ed. p. 95; also of *Leighton, Flor. Shrops.* p. 230, and Lees in *Steele's Hand-Book of Field Botany*, p. 57 (but not *leucostachys* of Smith). *R. nitidus*, *Babington, Syn. of Brit. Rub.* p. 9, and *Leighton's Fascic. of Shrops. Rubi* (not of Rub. Germ. according to figure and description).

Of rather general occurrence in wild spots on the borders of woods, but unequally distributed, and not a common road-side bramble. In many places in Worcestershire, Devonshire, Middlesex, Buckinghamshire, and Herefordshire. Shropshire, Rev. W. A. Leighton!; Leicestershire, Rev. Andrew Bloxam!; and Cheshire, the late Mr. S. E. Wilson! Most probably in all the southern and midland counties. Abundantly near Aberystwith, Cardiganshire. June to end of August.

This bramble may be known by its singularly *crisp, plaited, elliptical leaflets*, with greyish green pubescence beneath, on very prickly petioles, which become *densely prickly just where the leaflets commence*. The rachis, *slightly hairy at the base*, becomes *densely pilose above among the flowering branches*. The panicle consists of numerous compound branches *spreading out nearly at right angles to the rachis*, and sometimes even drooping, these are *very hairy*, thickly armed with pale, declining prickles, and *leafy nearly to the summit*; the upper floral leaves being simple, elliptical, and *crisped or plaited similarly to the foliage of the stem*; the uppermost branches being often closely and intricately crowded together. The calyces are covered with long hairs, sometimes prickly, and as well as the pedicels have often glands scattered upon them, but concealed to a superficial view in the dense pubescence. Sepals somewhat elongated, with a blunt termination, rather loosely reflex in flower, and frequently much stained with red at the base within. Petals almost invariably white. Fruit rather small, consisting of many drupes, black.

The barren stem is stated to be suberect by Mr. Babington, but according to my observation, and I have marked it carefully, it arches as much as any other, and most certainly I have seen it extending a long distance accumbent on a thicket, and very much branched. In the vicinity of Burnham Beeches, Bucks, where this form is abundant, I particularly observed it arching and rooting in the usual manner of the tribe this very autumn; yet no doubt occasional suberect forms may occur in the shade. The base of the secondary branches

is hairy, and scattered hairs are generally present on the stem, though as in other instances, when fully exposed to the action of the sun, it becomes denuded.

It is remarkable that this bramble is not mentioned by Mr. Borrer in the third edition of Hooker's 'British Flora,' although a specimen under the name of "plicatus" exists in the Smithian herbarium. My acute friend the Rev. A. Bloxam had previously informed me that Mr. Babington's plicatus was identical with my leucostachys, but it is only since Mr. Leighton's published observations in the 'Phytologist' that I have been able to satisfy myself fully, by an examination of Smith's specimens in the Linnean Society's museum. I presume that Dr. Bell Salter's Hampshire nitidus is the same as Mr. Babington's, but his description seems not exactly to coincide with the common plant I am familiar with. *R. affinis* is really a suberect species, with a very lofty, perfectly smooth stem, and quite distinct from this species.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
November 2, 1848.

Notes and occasional Observations on some of the Rarer British Plants growing Wild in Hampshire. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 343).

Lythrum Salicaria. I believe throughout the county in wet places. Frequent about Lymington, Bishopstoke and Southampton. Side of Tichfield River; Mr. W. L. Notcutt. Plentiful, but rather local, in the Isle of Wight, in wet willow thickets, meadows, &c. Much more frequent in West than in East Medina.

—— *hyssoipifolium.* Gathered, many years ago, in Pan Moor, at Newport, Isle of Wight, by Miss E. Kirkpatrick. I have been unsuccessful in rediscovering this interesting species in the above locality, or in finding it elsewhere within the county, but the caution and accuracy of that lady in determining the plants around her place of residence, and her full conviction on the subject, warrant its insertion here, without the further proof of specimens, of which I have seen none. A plant so fickle and transient in its stations as this, can scarcely be expected to persist through a series of years in the same

locality. It is a prize that must be seized and registered, or it may elude observation again for a lifetime.

Peplis Portula. Very common in the county and island in ditches, drains and on wet commons. Plentiful on Petersfield Heath along with *Isnardia palustris*, and from its similarity in habit and general appearance to that plant, is apt to impede the ready detection of the latter when sought for by persons previously unacquainted with it. Abundant on Short Heath, near Selborne, and on Wolmer Forest. The stem of the water purslane is made up of four tubes united around a central cord.

Ceratophyllum demersum? I recollect perfectly to have seen this or *C. submersum* in great plenty in the county a few years ago, I think in the river Test or Anton, below Romsey, but the exact locality has escaped me, not having been noted at the time. Heron Court, near Christchurch, Mr. Curtis, in Brit. Entom. (*cum icone*). In all likelihood not rare on mainland Hants, but the genus appears wanting in the Isle-of-Wight flora, in common with many other aquatics.

Epilobium angustifolium. Quite a frequent Hampshire plant in woods, thickets, on banks and in plantations, often in great quantity together. In vast profusion in the woods at Chawton Park, near Alton, especially in the valley betwixt the noble beech-hangers going from Beech Farm towards Meadsted, the sloping sides of which are literally covered with it, whilst the species is scattered over that wide domain for some hundreds of acres, May, 1848.* Abundant in various places about West Meon, particularly in newly cleared copses. Betwixt East Meon and Clanfield. Between Petersfield and Langrish, and along the S. W. railway, betwixt Winton and Bishopstoke, in both places sparingly. Plentiful at Selborne; Dr. T. Bell Salter!!! In great abundance on the west side of Boscombe Chine, near Bournemouth; Mr. Curtis. In several parts of the Isle of Wight in plenty, chiefly in boggy willow thickets, but no where occupying large tracts of ground, as on the mainland of the county. It abounds likewise in the adjoining county of Sussex, as in St. Leonard's Forest and near Chichester, &c.; but it is needless to multiply instances of the occurrence of a plant which increased and diffused observation has shown to be common in the south, though our earlier floras would make it

* I do not remember by the way ever to have been much more annoyed abroad by mosquitoes than in the dry beech woods at Chawton, about the middle of the last almost unprecedented hot and cloudless May, and such whacking fellows too!

appear to be frequent only in the north. It is indeed properly a plant of high and even arctic latitudes, but of great climatic adaptation, and admirably exemplifies that axiom of botanical geography, that the polar* limits of plants are far more abrupt and definite than their equatorial boundaries; in other words, that species proceeding from the equator towards either pole, have their vanishing-points more distinctly traced on the earth's surface than those descending from higher to lower latitudes; and the reason is obvious: cold is so uncongenial to vegetable life, and warmth so propitious, that a small increase of the former, or what is the same thing, diminution of the latter, suffices to arrest the development of a species whose constitutional tendency is to warm or temperate zones of habitation, but a moderate excess of heat beyond what is requisite for healthy and vigorous vegetation, seems to affect the majority of plants but little, as we see in so many alpine species, which thrive in our low and warm gardens as well as on their native mountains. Besides, the plants of cold climates, in their advance towards warmer regions, can and do take shelter from an undue temperature in lofty, humid, or umbrageous places, but the deficiency of heat is very partially and imperfectly supplied to plants migrating from warmer to colder latitudes by shelter and radiation, conditions which can only be found in a few favoured spots. Of this species of willow-herb, two very tolerably constant and well-marked forms occur with us in Hants. The first of these is distinguished by its usually smaller size, narrower leaves, which are of a darker green, and much waved or wrinkled, and considerably glaucous beneath, as also by the narrower or more contracted spike of smaller and deeper-coloured flowers. The second variety resembles the garden state of the plant, in its flatter and broader leaves, of a brighter green, and scarcely, if at all, crisped or wrinkled, in its larger and paler flowers and more expanded spike, the entire plant very handsome and stately. The capsules I find similar in both forms, that is, erect and much elongated, nor have I met with any wild plants in which the seed-vessels were short and spreading, as we find them in cultivation (*E. brachycarpum*, *Steph.*), a state arising, I suspect, from arrested development consequent on the increased disposition, in a plant already prone to that mode of multiplication, to propagate by the root, which the rich and loose soil of a garden

* I use the terms *polar* and *equatorial* as alike applicable to both hemispheres of our globe, whilst those of *northern* and *southern*, being of opposite attributes on each side of "earth's central line," of course are not convertible:

encourages. The former variety is by far the commoner in the Isle of Wight, the second, indeed, being very rare here, whilst it abounds in newly-cleared woodlands, and on steep banks in many places on the mainland: the Petersfield, Clanfield and West Meon stations being referrible to the large-flowered kind. I have likewise gathered it on Colonel Wyndham's domain, at Singleton, near Chichester, where it forms a perfect little forest at least six feet high, displaying all that beauty of colouring and luxuriant growth which so captivated Linnæus in this "royal plant" as, in his eyes, to invest the huts of the simple Laplanders, encircled by bowers of stately willow-herb, with the splendour of celestial abodes.* The smaller variety is more restricted to low, wet thickets, or damp heaths, and owes its characters apparently to a less fertile soil; but though each retains its peculiar features under cultivation as far as has yet been tried, both approach one another by gradations which manifestly forbid their separation as species. Miss L. Sibley has found this species with white flowers, near Petersfield. *E. angustifolium* in its spiked inflorescence, distinctly clawed and spreading petals, deeply lobed style and declined stamens, betrays a generic as well as ordinal alliance with *Gaura*, whilst *Oenothera* is more faintly adumbrated in the broad, rounded petals, and the revolutely lobed style of the following species. These analogies in species of the same genus to conterminous genera are curious and instructive.

Epilobium hirsutum. This handsome species abounds throughout the Isle of Wight, in damp places, along road-sides, and in our wet thickets, which are often quite filled with it, sometimes attaining a height of seven feet. Plentiful in most parts of the county. I do not remember to have ever seen or heard of a white-flowered variety of this plant. Occasionally cultivated in the Isle-of-Wight gardens.

—— *parviflorum*. Very common in the county and Isle of Wight, along damp lanes, hedges, woods, &c. Flowers occasionally white, but about Selborne, where it abounds, they are of an unusually bright red or purple colour. A nearly glabrous variety is frequent with us, probably the *E. rivulare* of Wahlenberg, as Mr. Babington also supposes (Man. p. 115).

—— *montanum*. Common all over the county and island, on walls, wet rocks, banks, and in woods, &c.

—— *palustre*. By far the least frequent of the willow-herbs with us; at any rate, as regards the Isle of Wight, it may even be

* 'Flora Lapponica,' p. 113.

called rare. In a pool betwixt Ryde and Brading, ditches near Sandown, and a few other places. On Short Heath Oakhanger, near Selborne, and probably not uncommon in the county generally.

Epilobium virgatum. Dr. Salter informs me that specimens pronounced by Mr. Babington to be this real or imaginary species have been collected in the Isle of Wight.

——— *tetragonum*. Extremely common in the county and island, in ditches, moist woods, hedges, &c.

——— *roseum*. Rare? Selborne; Dr. T. Bell Salter!!! Dr. S. remarks that this plant is usually found in cultivated ground, gardens, &c., but that about Selborne it is perfectly agrestal, growing on Short Heath, in sandy ground along the streams, as well as in the shady lanes about the village.

N. B.—*Oenothera biennis*? occurs occasionally in waste ground, about gardens, and in fields adjacent to them, but is nowhere, so far as I know, permanently established in the county or island. I have great doubts if the species so denominated be always the American plant which passes under the name on that continent, and which has smaller flowers than the naturalized outcast which we call *biennis*. The species of evening-primrose are very liable to variation even in their native region.

Isnardia palustris. Abundant in certain seasons in marshy spots and splashes, into which expands at intervals the shallow channel or drain for the superabundant water of the great pond on Petersfield Heath on its eastern side, in which neighbourhood (for it does not seem to be the identical station with the modern one) it was noticed nearly three centuries ago by John Goodyer, of Maple Durham,* a Hampshire botanist of much zeal and acuteness, and rediscovered about a dozen years back in its present station, by Miss Rickman and J. Barton, Esq. In dry summers it would appear the plant is rarely to be found, and for several seasons I sought it, like others, unsuccessfully, but in the past and very moist summer of 1848, it was again plentiful on the wettest parts of the heath along the course of the channel above described, though the finest specimens were only to be got at by wading ankle-deep in mud and water, and these luxuriant examples very seldom bore flowers; indeed, I could find scarcely any in that state, when at Petersfield in July and September,

* Maple Durham is an ancient tenement, once a religious house, two miles from Petersfield, on the Portsmouth road, in the parish of Buriton, and must not be confounded with the place of the same name in Oxfordshire, or with Maple Durwell, near Basingstoke, in this county.

though I took much pains to discover both flower and fruit. More lately it has been found in a second Hampshire station, by Mr. Borrer, its original discoverer, or rather rediscoverer in this country, namely, in a pool a little way out of Brockenhurst, towards Lyndhurst, growing with *Nymphæa alba* and other aquatics, but of more difficult access than at Petersfield!!! A somewhat practised eye is required to detect the *Isnardia* in its native swamps, even where it is known to exist; for the stems, immersed in water, and half hidden amongst the other herbage, may be overlooked for *Peplis Portula*, or some state of a *Potamogeton*; it is hardly to be wondered at, therefore, that it should so long have escaped notice, whilst, shrouded under a cumbrous and obsolete diagnostic phrase rather than a name,* its occurrence in England was not even suspected. This is assuredly a beautiful, though not a showy, plant; the lucid, transparent green of its leaves, harmoniously blending with suffusions of the richest olive brown and bright red veined with crimson, can hardly find a parallel in any other indigenous vegetable of our land. On the continent of Europe and in America, *Isnardia palustris* and *Leersia oryzoides* have the same geographical distribution, and these seem good grounds for believing that the like will be found to hold true in this country. The latter will probably reward a diligent search in our Hampshire waters, and should be looked for in the localities pointed out in this journal (*Phytol.* ii. p. 1003). In Sussex it has lately been detected by Mr. Mitten, in a second station many miles remote from the original one at Henfield, namely, in Little Ease mill-pond, near Cuckfield, where Mr. Borrer kindly showed it to me, growing amongst reeds, early in the present month (October), the panicle, as usual, wholly included within the sheath.

Circea lutetiana. Plentiful in various parts of the county and Isle of Wight, in damp, shady places, woods, &c.

Myriophyllum verticillatum. Ponds and ditches, rare? In ditches communicating with the Avon, near Sopley; Dr. Pulteney in Hamp. Rep. Southampton Canal, by Millbrook; Mr. W. L. Notcutt. Not found in the Isle of Wight.

————— *spicatum*. Abundant in the marsh ditches of Sandown Level and elsewhere in the Isle of Wight. Near Hill Head; Mr. W. L. Notcutt. About Winchester, and frequent I believe over the county.

* *Anagallis aquatica* flore parvo viridi caule rubro. "In a great ditch neer the Moor, at Petersfield, Hamshire." Mr. Goodyer, *Merrett's Pinax*, p. 7.

Myriophyllum alterniflorum. Abundant in some of the marsh ditches in Sandown Level, and in pools in several places in the Isle of Wight, alone or mixed with the last, but I think perfectly distinct from it as a species.

Hippuris vulgaris. Apparently not uncommon in Hants, but very rare in the Isle of Wight, where it grows only in a few ditches on Sandown Level. In a wet meadow near Bishop's Waltham. Common in rivers and ditches about Winton. In Winnal water-meadows, on the north side of that city of deep, rapid, and translucent streams, I find it of most luxuriant growth, with stems completely submerged and leaves often deeply cleft.

Callitriche verna. Pools and ditches everywhere.

———— *platycarpa*. Frequent on the wet margins of pools, &c., in the Isle of Wight, and probably all over the county, but its distinctive characters seem to me very questionable, and just such a difference of locality might be supposed capable of creating.

———— *pedunculata*. A plant which I suppose to be this, but which I have not yet minutely examined, grows in several places in the Isle of Wight, chiefly in deep still waters of ditches and drains, but not very commonly.

Bryonia dioica. An extremely common and ornamental vine in hedges and thickets all over the county; rather less frequent on the mainland close by the sea, though still far from uncommon about Portsmouth, in Hayling Island, and elsewhere along the coast. By no means rare in the Isle of Wight, but almost wholly confined to the chalk and greensand of the interior and central part of it, about Newport, Carisbrook, Gatcomb, Buccombe, &c., shunning the line of coast through its entire extent, even where those rocks predominate, so that not a single specimen has occurred to my observation anywhere near Ryde, Brading, Shanklin, or in the Undercliff, whilst it is equally wanting at Cowes and everywhere to the westward of that place. A specimen or two has indeed strayed as far as Freshwater parish, and a few plants are scattered about Shorwell within a couple of miles of the south-west shore; with these very partial exceptions, the bryony is absent over a broad belt of country embracing perhaps two-thirds of the island, and which defines the limits of two other species with nearly equal exactness, namely, *Campanula Trachelium* and *Rhamnus catharticus*, that grow chiefly, if not exclusively, on the chalk, yet are not found to follow the extension of that formation coastwards. That an extreme maritime or insular locality does not suit the bryony, is apparent from its increasing scarcity westward, and its total absence

in Cornwall, Ireland, and Scotland,* and its sparing occurrence in the Channel Islands. Even in the Isle of Wight, in those parts where it does occur and that not sparingly, its distribution is manifestly more sporadic than on the mainland and interior, the plants growing single or few together in one spot, not weighing down the hedges with an impenetrable matting of stems and foliage for yards together as we often see it doing in its inland stations. The abundance of this plant on Longwood Warren, near Winchester, is truly remarkable; it is there seen trailing like cucumber-vines over the dry stony ground, in the most open and exposed parts of that elevated and desolate tract, and even when growing amongst the clumps of bushes that partially clothe its naked and sterile surface, seems to disdain availing itself of their aid to indulge its usual habit of climbing. Called mandrake universally in the Isle of Wight. The dull scarlet berries have the most sickening fœtor of any plant I am acquainted with.

Montia fontana. Very common in the county and island in wet places, on damp arable land, &c. The larger variety, *β. major*, *M. rivularis*, *Gmel.*? in drains and ditches occasionally.

Herniaria glabra. Sandy shores, Portsmouth; Martyn. This I have not yet seen in or from its alleged localities.

Scleranthus annuus. Plentiful in corn-fields and dry waste places all over the county and Isle of Wight.

Tillæa muscosa. Sandy barren heaths; rare. Abundantly near Stoney Cross, in the New Forest, along the sides of the road by the inn and elsewhere; Mr. Hussey! This curious and minute plant abounds about Poole, in Dorsetshire, and will probably be found to inhabit the conterminous parts of this county not uncommonly if specially looked for.

Sedum Telephium, L.? In woods, thickets, on shady hedge-banks and grassy margins of fields. Decidedly rare in the Isle of Wight, where I find it only on banks and borders of fields at Pound Green, in Freshwater, but in some plenty, also near Ashley very sparingly. More frequent on the mainland. In a wood (Westwood?) near Netley Abbey. At Otterbourne and near Bishop's Waltham. Near a pond on going to Shirley across the fields; Mr. W. L. Notcutt. Is this the true *S. Telephium* of Linnæus, the Swedish plant having al-

* The whole of Scotland is probably beyond its polar limit, which scarcely exceeds lat. 54° on the European continent, above which (in Sweden and Russia) it is replaced by the more northern and eminently eastern *B. alba*, erroneously given as an English (Cambridgeshire) species by Martyn.

ways the flowers yellowish green, not purple as in the more southern parts of Europe?

‡*Sedum album*. A more than doubtful native of Hants. On the thatched roof of an old house in Yarmouth, Isle of Wight, where I have remarked it for several years past, but though perfectly established it cannot of course be deemed indigenous. South Beach, Hayling Island; Rev. G. E. Smith: but there are the remains of a garden on the spot it was said to occupy, and the station, which is near the "buildings," is open to suspicion on this last account also. I am not aware of any other or less exceptionable station for this species in the county. When we reflect that the great bulk of the species composing this genus inhabit elevated rocks and mountain districts, we cannot be surprised that the few that do accommodate themselves to the plains or inconsiderable altitudes should have the aspect of aliens and interlopers in situations so foreign to their constitution.

†——— *dasyphyllum*. On old walls and roofs, rare; most likely introduced originally, and subsequently escaped from cultivation in both, as it certainly is in one of its Isle-of-Wight stations. On Bradling Church, and especially on the south porch, with *Ceterach officinarum* in plenty; also on some walls in that ancient but decayed borough, though now almost destroyed by repairs. Abundant on tiled roofs at Alverstone Mill, near Newchurch, doubtless established from the garden of the miller, who has a great taste for horticulture. On the stone walls round the fields at Liphook; Miss Lovell! This sounds less suspicious than the foregoing stations, but I have not visited the spot, and doubt if the species be anywhere indigenous to Britain, though completely naturalized in many parts of the kingdom.

——— *anglicum*. On most parts of the Hampshire coast in plenty. On Ryde Dover, St. Helens, and other places in the Isle of Wight. Abundant on the South Beach, Hayling Island, at Portsmouth, Gosport, &c.

——— *acre*. Walls, rocks, roofs, and sandy ground; abundantly. This and the preceding are the only two indubitably native *Sedums* in this island and county.

†?——— *reflexum*. Common on walls, roofs of houses, and ruins (rarely and accidentally? on rocky banks) in the Isle of Wight, and as far as I have remarked frequent in the county generally. Often planted for ornament on cottage roofs. Though perfectly naturalized and spontaneously disseminated, this has not with us the look of an aboriginal production, its proper home being probably on rocks considerably above the sea level; yet excepting perhaps its controverted

varieties, *S. rupestre* and *Forsterianum*, it appears to be less alpine in its habit than most of its congeners, to judge from its stations in Germany, Switzerland, &c.

Cotyledon Umbilicus. On walls, rocks, and damp stony banks and hedge-rows. Rare in Hants. Hedge-banks by Bohemia, Isle of Wight; Mr. George Kirkpatrick!!! Abundant on hedge-banks at Redbridge, at the head of the Southampton Water. In quantity by the road-side at Great Testwood, six miles from Southton; Dr. A. D. White. In our drier climate this plant scarcely attains to above half the size it does in the western counties, where, as in Devonshire, I have gathered it upwards of two feet in height.

N.B.—*Sempervivum tectorum* is excluded from this list of native and naturalized Hampshire plants as being in every instance propagated by the hand of man, and therefore not entitled to rank even amongst those of the second category. It is to be lamented that this and other vegetable productions foreign to our geographical position and climate, as *Swertia perennis*, *Crocus aureus*, *minimus*, and *sativus*, *Gentiana acaulis*, &c., &c., together with the entire of the Channel-Island plants, which are in no wider sense British than those of the rock of Gibraltar or any other of our dependencies, should continue, through a servile compliance with established custom and routine, often I am convinced in opposition to the better judgment that would reject them, still to encumber and I may say disfigure the pages of our general floras of the United Kingdom. I use the expression disfigure advisedly, because whatever destroys unity of design, whether in works of art, fiction, or science, is as it were an excrescence on their true proportions, and therefore a disfigurement in the strictest acceptation of the word. Why in the name of common sense must *Crocus sativus* still be doomed to linger on the soil of Britain, the shade of a defunct foreigner,—the merchant plant that has long ceased to survive the extinction of that trade which called him from his mountain home, in the Abbruzzi, to become like the Jew a denizen of our isle for business purposes with no ulterior view of settlement? If the species in the concrete were inadmissible, how much more absurd is it to retain it in the abstract—the shadow when the substance has fled. It is, however, refreshing to observe how most of these respectable representatives of by-gone error and blind devotion to authority are, thanks to Messrs. Babington and Watson, “growing less by degrees and infinitely small,” and are not permitted by them to go abroad without a guard of brackets or drawn daggers, to prevent their breaking bounds and re-asserting their ancient but usurped right

to citizenship. Surely it would be better to drop in future all mention of certainly extinct or non-naturalized species, than to continue giving to them "a local habitation and a name," by referring, however slightly, to the pages of 'English Botany,' and those earlier works in which they first appeared on the list of natives. The former of these books will ever remain a standard for reference to its pictorial illustrations; we should only have to regard such amongst its plates and pages as relate to the species in question as virtually so many blanks to be passed over unnoticed, and they would soon come to be looked upon in that light, and be neglected and forgotten. It seems to me an injudicious waste of time and space to rake up the ashes of a palpable and fully acknowledged error when further warning against it is needless; it is high time to clear our British flora from the mass of false natives, false species, and other blunders of the early days of botanical science, but the bracketing of often and again exposed and refuted mistakes tends rather to keep alive error than to suppress it; a dignified silence would be the most effective extinguisher to the last lingering claims of the species we have just alluded to.

A word or two on the Channel Islands. It would seem as if length of possession and incorporation with the rest of the kingdom by institutions, civil and ecclesiastical, had some how or other the power to overrule the decrees of Nature, and effect the juxtaposition of that group with our own shores rather than with the opposite coasts of France. Yet it is not clear to me that the recognition of the Queen's authority in Guernsey and Jersey, or the periodical visitations of the Bishop of Winchester to that transmarine part of his diocese, has effected the slightest change in the relative position of these islands with respect to our own since the conquest, or brought them one inch nearer to us than they were at that remote period; and unless it can be incontestably shown that the distance betwixt England and Jersey has diminished and is diminishing as the square of the times, or in some other satisfactory ratio, I humbly venture to suggest, that whilst we are proud to acknowledge the brave and loyal people of Sarnia and Cæsarea as fellow liegemen, and will stand by them against France and all the world, as they assuredly would stand by us in the day of trial, we should, nevertheless, henceforth and for ever (botanically speaking) cede, assign, and make over the soil of their beautiful islands and its native productions to that Gallic territory of which Nature insists on its still forming a part.

There is an old and trite proverb that "a miss is as good as a mile;" we may invert it, and say "a mile is as good as a miss;" for

were the Channel Islands but *one* as they are *many* miles nearer to France than England, the balance of proximity would incline, though not as greatly, yet quite as decisively, in favour of their continental connection, keeping out of view their similarity in geological and other physical features to the mainland of France as additional arguments for grouping them with the latter.

It will perhaps be urged that the plants of the Channel Islands, having been incorporated with those of Britain by the older botanists, and all succeeding writers, the weight of the precedent sanctions the the continuance of the custom. But if the precedent be a bad one, as I think every unprejudiced person must admit it is, the mental subjection which adherence to its authority implies, is a reproach we should hasten to wipe away as soon as possible. Botany, in the time of Ray and Sherard, was not the beautiful and philosophical science it has since become, and that department of it, vegetable geography, which it is so peculiarly the province of all floras, general as well as local, to elucidate and extend, had not then been made a subject of inquiry, or was even so much as thought of as matter for disquisition. An extension of the boundaries of the British flora to the Channel Islands, as at that time no recognized principle of unity or limitation was compromised by the act, might appear an indifferent or even natural proceeding; but the precision of a later day revolts at the attempt to continue the amalgamation of a portion of the French flora, however small, with that of England, on considerations purely political, for no other but these can be alleged in defence of so absurd a practice, unless it be an unwillingness to give up a dozen or two of plants long held peculiar to those islands, which have, like borrowed plumes, been paraded as if of native growth in all our publications since the days of the old botanists above mentioned.* The Sarnians are very tenacious of their own laws, manners and customs, and with all their attachment to the crown of these realms, are not ambitious

* An advance towards getting rid of these interlopers has been made in the 'Manual of British Botany,' which augurs well for their final ejection. But is not the 0 appended to the plants of the Channel Islands in that work a plain though tacit acknowledgment that such have no business to appear in its pages, as not naturally associating with the professed scope and object of a purely British Flora? Why, then, should their retention be suffered to disfigure and mar the unity of that excellent hand-book when the remedy is so easy? Let us hope that in the next edition of the Manual its accomplished author will have the courage wholly to discard these extraneous species by omitting *all mention* of them; the example, once set, will as surely be followed as was that by which the abuse was so long upheld before.

of being thought English, nor have centuries of political annexation sufficed to make them so, or wholly to supplant the Norman by a Saxon idiom. The race is essentially French, and will ever remain such, their position insures it, and if to themselves, *a fortiori* to the plants of their islands, which, could they but make themselves heard, would doubtless contend, in the purest dialect of Neustria, for identity of descent with the Norman inhabitants.

It is true a case may be conceived in which natural geographical relations and proximity must give way to artificial or political circumstances; for let us suppose the Channel Islands situated as near to our own coasts as they now are to those of France, and though speaking the language and holding the customs of Britain, to have been long annexed to the former country, we could not, *practically* speaking, include them in the English flora, because, forming no part of the English territory, we could assert no right of property in the soil and its productions. Yet *theoretically* we should have the better claim to the possession of both, and I question much whether this consideration would not so far outweigh the practical view of the matter, as at once to open our eyes to the absurdity we have so long been committing, in the attempted junction of two dissimilar and widely dissevered botanical areas. For my own part, had the island from which I am writing been a province of France from time immemorial, I should still think its flora but awkwardly assorted with that of Normandy, whilst at the same time, considered abstractedly, or apart from the question of territorial claims, I should see no greater impropriety if, in the construction of a Flora Gallica, the Channel Islands were held as forming a portion of France, than there would be in considering (as I suppose most people do) the Rock of Gibraltar as appertaining to the flora of Spain, though in the occupation of a foreign power. If the French have no *political*, we have no *natural*, claim to the Channel Islands, the relations of which to the mother country are as purely colonial as those of Malta or Corfu: this is plain by their many fiscal and legal immunities, the possession of a mixed currency, and their own Norman courts of judicature, &c. They are, in short, not English, either by position or otherwise, and their botanical abandonment is the only course open to us if we would preserve unity and consistency in treating of our national floras.*
Mais revenons à nos moutons.

* After all, why cling so fondly to these outlying islands, if to make a bad title to the few peculiar plants they afford be the only motive for non-abandonment, seeing that the greater part of these species have been found on the south-west coasts of

Ribes nigrum. Damp or boggy woods and thickets; rare. In several parts of the Isle of Wight, usually sparing in quantity, but I think truly wild. I am not at this moment possessed of data relative to its distribution on the mainland of Hants. Inhabits the whole of central and northern Europe, even beyond the arctic circle.

— *rubrum*. Extremely frequent, and in some places abundant, in various parts of the Isle of Wight about Ryde, Newport, Freshwater, &c., in woods, thickets and hedges. I have no doubt a genuine native, the wild plant differing in some particulars from the garden variety, much in the same manner and degree as *Vitis vinifera* in its natural state does from the cultivated grape in the vineyard. (See Phytol. ii. p. 517). I know nothing of its distribution in mainland, Hants. In the woods at Redenham, near Andover; Mr. Wm. Whale. Widely spread over Europe from the plains to the mountains, and in America within the polar circle.

— *Grossularia*. Frequent, but sporadical, in woods, hedges and clefts of rocks in the Isle of Wight, and I believe over the whole county, quite wild. About Petersfield, &c. Very seldom found in fruit; the few berries I have seen were smooth and amber-coloured* (*R. uva crispa*, L.). For further remarks on our wild currants see 'Phytologist' ii. p. 517 to 521.

The three foregoing species of *Ribes* are amongst those unfortunate

England, and the remainder may reasonably be expected to reward the present active spirit of research which is rapidly increasing the number of our *legitimately* British vegetables.

* The non-production of fruit or seed is no argument, scarcely even a presumptive reason, against the indigenous origin of a species. It sometimes arises from the habitual defect or suppression of the necessary organs, and sometimes from the influence of climate. Of the last we have a notable example in our common ivy (*Hedera Helix*). This shrub has an extensive range over Europe, but in the more northern parts, as in Sweden, where it is truly indigenous, it is only in very favoured spots in the southern and maritime provinces that flowers and berries are produced. In those countries the ivy is scarcely known but in that form in which we see it in our woods and on banks, familiarly called barren or creeping ivy. The same is observed in southern Russia (excluding the Caucasian provinces), where Ledebour, and I think also, Pallas, remarks that it never fructifies. I have myself noted this increasing sterility of the ivy on advancing into the eastern and inland parts of continental Europe, where the winters are too rigorous for the perfect development of plants of such southern tendencies as the woody Araliaceæ. The fruit of *Acorus Calamus* is so rarely perfected, that its structure is practically known but to few botanists, as Mr. Brown has remarked to me; yet is it a very widely spread plant, being found over a great part of the globe, as are many other aquatics.

plants, which, for some reason or other, quite incomprehensible to myself, it is the fashion to look upon with an eye of suspicion, or even to denounce without scruple as a kind of vegetable squatters on the soil of Britain. I may partially except *R. rubrum*, which is generally admitted to be native to the north of England and Scotland, and Mr. Watson (*Cyb. Brit.*) seems disposed to credit its "apparent" claim to be thought indigenous in the south also, betraying, by that expression, a still lurking reluctance to concede his full assent to the proposition. Passing on to the third species, *R. Grossularia*, as requiring the same line of defensive argument in its behalf, we find the outcry against its indigenous origin general; no one has a word to say in favour of a gooseberry-bush beyond praising its fruit, there is something (perchance in its name) which indisposes us to receive it as a true born Briton. Now, although the gooseberry ideally be right pleasantly associated, in a certain savoury mess, with mental simplicity or imbecility, and even expresses, in its English vernacular, the type and symbol amongst animals of lack of discretion, I will incur the risk of being thought actuated by a fondness for both goose and fool in pleading the right of this useful, though humble shrub to be held an indigenous production, and I would challenge to the argument thus: if *R. Grossularia* be not a native of Britain, show me where is its true and undoubted home. This is an important question to have answered, because I have uniformly observed, that in the case of all those plants whose indigenous origin it has been the custom to suspect or deny, no attempt is made to show grounds for the opinion drawn from the only true touchstone of truth in this matter, the geographical distribution of the species beyond the narrow limits of our sea-girt isle. We *must* look abroad for the key to this ever vexed question if we would wish it satisfactorily set at rest, which I do not despair of seeing finally achieved; but this can never be accomplished so long as we rest contented with taking for granted the unsupported opinions of others derived from a contracted sphere of observation, and neglect the only data which can give us the solution we are seeking. See *Phytol. ii. p. 518, note.*

Now I find on consulting a great variety of authentic sources, that *R. Grossularia* is distributed over the major part of southern, central and northern Europe in precisely the same situations in which I find it here at home, and in no other. I cannot learn that it is a native of Asia,* Africa or America, from whence we might originally have de-

* The Asiatic representative of our common gooseberry is the Siberian *R. aciculare* of Smith.

rived it, I therefore conclude it to be a strictly European species, and as such, and from its known range, *likely* to belong to our portion of that continent over which we have just seen it is so widely diffused. Furthermore, I find the gooseberry inhabiting the deep recesses of woods and rocky dells, far from the haunts of man and from cultivation. I put these facts together, and think myself justified in drawing from them the inference that the gooseberry is as truly native with us as it is on the continent of Europe, to which quarter of the globe it seems exclusively appropriated. The fact of its being often, and perhaps more commonly than otherwise seen in hedges and other doubtful or suspicious places, is surely, taken by itself, no sound argument against the point contended for, because any native plant in such general cultivation would, as this does, be continually straying beyond the precincts of the garden, and the more readily as being the natural product of the soil and climate.* As for the hackneyed and popular mode of accounting for the propagation of this and other supposed foreigners through the agency of birds dropping the seed, the argument is not worth refuting, this being one of the many means employed by Nature herself for the dissemination of species the seeds of which are unfurnished with mechanical contrivances for their diffusion abroad.† An explanation like the above can only be adverted to in the case of plants which we see springing up around habitations or in decidedly suspicious places; beyond this it is of no weight or value whatever. I do not, on perusal of the writers of continental floras (an extensive collection of which, old and new, I am much in the habit of consulting), find the same disposition to doubt the origin of species which seem so peculiarly to characterize the botanists of this country, that they must needs have recourse to the hypothetical

* The genus *Ribes* belts the whole globe under our own and other temperate parallels, the species only changing with change of climate and longitude. Thus we have *R. Grossularia* as one appropriated to the woods and rocks of the western extremity of the old world. *R. nigrum*, *rubrum* and *alpinum* stretching over the entire continent from Italy to Lapland, and eastward through Siberia to Kamtschatka, *R. rubrum* extending beyond Behring's Straits to the extremest arctic lands of America. In the south these species inhabit the mountains or higher grounds, in the north descending into the plains, and even in our central Europe are found at slight elevations or at the sea-level, in cold, shady, or damp situations. Crossing the Atlantic, we find under our latitudes in Labrador and Hudson's Bay, the analogues of our black currant and gooseberry in *Ribes floridum*, *Cynosbati* and some other American species, which finally give place on the west of the Rocky Mountains to *R. sanguineum* and congenious kinds with large and showy flowers.

† Phytol. ii. p. 518.

agency of birds, monachism, garden escapes, and other problematical and unproved operative causes to account for the dissemination of half the plants of our country whose flowers are a little more specious in appearance than ordinary,* without considering that Nature in her beneficence has not left the most hyperborean regions, or the most sterile wastes, unadorned by some rare and lovely floral productions to gladden the 'general desolation, whilst she scatters, with a yet more unsparing hand, her richer gems over temperate and fertile countries. Cast a glance over the inhospitable and frigid Siberia, on

* To give one instance out of a hundred that might be adduced, it has been conjectured that the *Arbutus* which so profusely adorns the Lakes of Killarney and their neighbourhood, was introduced by the monks of Mucruss from the south of Europe in very early times, because a tree of such exotic aspect was thought very unlikely to be of native growth; and considering the narrow limits within which it is confined in Ireland, and the long leap it has taken to establish itself so far to the northward of its limitrophe parallel on the continent of Europe, there seemed reasonable ground for the supposition. But more extended observation has amply shown that the spontaneous growth of the *Arbutus* in the west of Ireland, is clearly demonstrated by some plants that accompany it being precisely those which are its associates in the south of Europe, and have their vanishing-point in nearly the same parallels and meridians with itself. Such are *Erica mediterranea*, *Daboecia polifolia* and *Euphorbia hyberna*, all species of an extreme western distribution, and whose absolute spontaneity in Ireland never has been or can be called in question (*Phytol.* ii. p. 518, note). Had this fact been known or reasoned upon, the gratuitous assumption of the introduction of the strawberry-tree into Ireland by human agency would never have found favour with botanists; certainly with none who, like myself, have witnessed the wild profusion in which no hand but Nature's has flung it forth, in ever-verdant beauty, over mountain, crag and rocky islet, amid the splendid scenery of those unrivalled lakes. It affords also a triumphant illustration of the value of the study of phyto-geography in assisting to ascertain the real limits of plants, and which alone, I repeat as my firm conviction, will enable us to adjust the discordant, and I must add, often absurd views taken by British botanists of the origin of our indigenous vegetables. I have never heard a *satisfactory* reason, rarely, indeed, any reason at all assigned, why *Tilia parvifolia*, *Fagus sylvatica*, *Humulus Lupulus*, *Daphne Mezereon*, *Phyteuma spicatum*, *Vinca minor*, *Muscaria racemosum*, *Narcissus Pseudo-narcissus*, *Lilium Martagon*, *Fritillaria Meleagris*, *Tulipa sylvestris*, *Impatiens Noli-me-tangere*, *Helleborus fœtidus* and *viridis*, *Viola odorata*, our three *Ribes* and many others, *should not* be genuine natives; yet have all these in their turn been starred and daggered, and doubted and denounced, some by one and some by another, in a diversity of conflicting opinions that must sorely puzzle French, German, Dutch, Danish and Swedish botanists to comprehend, who are accustomed to consider most of the above species as indisputably belonging to their respective floras, and thankfully accept them at the hand of Nature without carping and cavilling with disputatious nicety about their origin. In the 'Manual of British Botany' many of the typographical symbols of scepticism, so frequent in other works on the same subject, have been omitted, which is one amongst the reforms which that useful publication has effected.

the Altaic chain of mountains, and the vast plains at their feet, where the mean temperature of the interior of the earth's crust is but little above the freezing-point the year through, yet what an array of even southern types of vegetation does the short and not very warm summer of some five months' duration at most unfold to the botanical traveller, in the various species of Zygophyllaceæ, Rutaceæ, Amaryllidaceæ, Liliaceæ, Tamariscaceæ, and even of arborescent Leguminosæ, in *Halodendron*, *Caragana*, &c., a proof that Nature is not easily repressed in her efforts to decorate this world of ours with all that is fair and lovely, even where climate is most opposed to her benign endeavours! And shall not our happy island of Great Britain possess some floral beauties truly her own, when the same have been so lavishly bestowed on rude Siberia's ice-bound hills and deserts? May not the lime and beech clothe *our* slopes as well as those of France and Germany, *our* woods be carpeted with periwinkle and "Violets dim," festooned with the wild hop-vine, or made radiant with spring daffodils, as well as those of our neighbours across the Channel, without having our faith in the rightful possession of these gifts of Flora shaken or put to flight by eternally hearing from the lips of some botanical infidel or other, the ungracious exclamation, "*vix ea nostra voco?*"

It will not, I think, be difficult to trace the causes which have led to this remarkable scepticism in the botanists of Great Britain, which I shall now briefly proceed to consider.

Isolation from the rest of Europe by natural position, and a long war, had, for a succession of years before the opening of the continent in 1815, thrown our botanists upon the scanty stores of information relative to our native plants which could be gleaned from the few floras of the kingdom then extant. Since then, and previously to the appearance of the Manual, our standard British floras had been compiled by botanists residing in the middle or northern parts of the island, and who were either not very assiduous in their investigations in the field (in some cases from disinclination, in others from physical inability for the performance of a task so laborious and demanding such continued exercise of patience and perseverance), or had their time and thoughts engaged with professional duties, or devoted to the interests of the science in a more general way. Hence it happened, that these floras, excellent as they were in other respects, were extremely defective on some points where minute and oft-repeated personal observation was required to attain to accuracy. Such were the flowering-times of the species, their distribution over the country, and

the question of spontaneity. The want of foreign authors, by consulting whose writings these and many similar omissions and mistakes might have been avoided, but of whose labours we neglected to avail ourselves long after they were made accessible to us by the peace, gave paramount authority in turn to the Floras of Withering, Smith and Hooker, and the tendency in mankind to credit the *verba magistri* rather than take the trouble to think and inquire for themselves, propagated a host of errors on these heads, whilst opinions were bandied about at second hand, without any accession of truth from abroad, in an endless round of crude assertion or conjecture. Add to this, that the comparatively few field botanists of the day were for the most part men of the old Linnæan school of collectors, who, if they could but add a rare plant to their herbarium, or a new species to the national flora, were little solicitous to advance the philosophy of the science by any observations on the structure, habits or distribution of our indigenous vegetation. We are too prone to imagine that in the way of discovery all has been found that can be found, and it has more than once happened to myself to hear on the announcement of a new plant an expression of doubt or surprise, such as, "Oh, indeed! but I cannot find it in Hooker, Smith or Withering;" the process of inferential reasoning being apparently this: if a native, it should be in those authors,—those great authorities could hardly have been ignorant of its existence, it has therefore probably been planted or otherwise introduced.

Fries* complains, that the botanists of middle Sweden do not sufficiently confide in the genial climate and soil of Scania, and hence refuse admittance into the 'Flora Suecica' to many plants which he thinks should rightfully enter therein, because not having seen them truly wild in their own districts, they cannot be persuaded to believe them so in this, the most southerly province of Scandinavia. A similar and equally erroneous impression as regards the plants of our southern coast may be occasionally traced in the floras of Scotland and the north of England, in which some of our most indubitably native plants have had their spontaneity questioned all over the kingdom, because in those parts of it they never appear as aboriginals.†

* Fries Nov. Fl. Suec. p. 10.

† Thus in the 'Flora of Forfarshire,' very lately published, the author observes of *Narcissus Pseudo-narcissus* (p. 191), that "it has probably no claim to be considered a British plant, but is hardy and easily naturalized." Mr. Gardiner could never have seen this species as it displays its boundless profusion of flowers over acres of our remotest woodlands, or have studied its geographical distribution on the continent, or

But this loose mode of reasoning is best met by referring to the distribution of the suspected species abroad, which will seldom fail to expose the fallacious premises. Popular and historical tradition is the last ground I shall mention as having been advanced against the indigenous claim of some British species. Thus the spontaneity of the hop has been opposed on the faith of an old distich not very much to the purpose if fairly examined, and that of the cherry and beech on evidence which has nothing but its classicality to recommend it. With respect to the hop, Sir James Smith says, "I have sometimes suspected hops not to be indigenous, which was also the opinion of Lightfoot with regard to Scotland. But Haller says they are never cultivated in Switzerland, where nevertheless the wild plant is abundant, and it may with equal probability be reckoned a native of Britain" (Engl. Fl. iv. p. 241). Sir James might have added, that a plant found in every country of Europe, from Spain and Italy to Norway, Finland, and Russia, as high as 63° of latitude, and throughout Siberia and a part of North America, is not unlikely to be indigenous to the British Isles. I am convinced that no plant is more truly and incontestably wild than the hop with us; it abounds even to profusion in the Isle of Wight, where it is never cultivated, and quite as much in those parts of mainland Hants where hop grounds do not exist as where its cultivation is most extensively carried on. Yet Sir Wm. Hooker brands it with the asterisk as a certainly introduced species, though without assigning any reason for doing so. Smith, we see, appeals to geographical distribution against his own scepticism, but apparently without knowing the full power of the argument he employs; his conversion is therefore less hearty and entire than it would probably have been had he traced the range of this species to its utmost limits. This example of the hop is instructive, as showing on what slight grounds, or none at all, the nativity of our plants has been questioned or denied. But an end to this long yet I trust not altogether useless digression.

he would scarcely have formed so hasty an assumption. He would have seen that it is the last outlying species towards the north of its eminently European genus, ranging through Holland, Belgium, and Germany to the south shores of the Baltic, and therefore *quite as likely* to be indigenous with us up to the same latitude (54°) in its perfectly *wild* looking localities. Indeed, it is now admitted on all hands to be a true native of England, after some nonsense spoken at times, *more majorum nostratum*, about having been *perhaps* a garden flower and introduced by the monks, and so forth. I quote from the above useful and agreeably written little work to show how error may be originated and kept alive by such gratuitous conjectures as these.

Saxifraga granulata. Meadows and pastures; rare? Abundant on Magdalen Hill and elsewhere near Winton; Dr. A. D. White!!! Chilbolton; Dr. Pulteney in Hamp. Rep. Pingleston Down, near Alton; Mr. F. Forder. St. Mary Bourne, three miles from Whitchurch; Miss Hadfield! Near Andover, at Clanville; Mr. Wm. Whale. Not found in the Isle of Wight.

———— *tridactylites*. On walls, rocks, and sandy ground. In several parts of the Isle of Wight, but by no means common. Walls of Quar Abbey, and on Gatcomb Church. Abundant on the sandy shore of Gurnet Bay; Miss G. E. Kilderbee!!! Common on old walls at Winchester. At Wallington and N. Fareham; Mr. W. L. Notcutt.

Chrysosplenium oppositifolium. In wet places, ditches, brooks, &c. Abundantly throughout the county and Isle of Wight.

———— *alternifolium*. Very rare. Near Hedley; Mr. Brown in Merrett's Pinax. Found there, but very sparingly, in 1844, by Mr. W. W. Reeves, to whose kindness I am indebted for a specimen of a plant of uncommon occurrence in the south generally.

[To be continued].

ERRATA.

Page 336, for *Beeker* read *Becker*, and for *Frankfort* read *Frankfurt* (the German orthography for that city).

Page 337, for *Langwood* read *Longwood*.

Page 338, second line, for *eastern* read *earthen*.

Page 339, for *Bartoloni* read *Bertoloni*, and third line from bottom, for *mashes* read *marshes*.

Page 341, the words *dark green* should have been in italics, because they allude to the *Cerastium atrovirens* of Babington. As the words stand without emphasis their meaning will probably be unintelligible to nearly all readers.

Page 343, for *angustifolius* read *angustissimus*, and lastly, for *gage* read *Gage*, as being a proper name.

WM. A. BROMFIELD.

Eastmount House, Ryde,

Isle of Wight, November 6, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, November 3, 1848.—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced:—

‘The Hand-Book of British Ferns,’ by T. Moore, presented by the author; ‘Proceedings of the Literary and Philosophical Society of Liverpool during the 36th Session,’ presented by that Society; Parts 1 and 2 of Vol. i. of the ‘Transactions of the Tyneside Naturalists’ Field Club,’ presented by the Club.

T. C. Hunt, Esq., Her Majesty’s Consul at St. Michael’s, presented a box of Azorean specimens, including four species not previously known to occur in those isles, one of them being a remarkable handsome *Vicia*, but whether a new species, or one already described, has not yet been satisfactorily ascertained.

Mr. Hewett Watson presented some foreign plants, chiefly European and Canarian.

British plants had been received from Mr. Hewett Watson, Dr. Bromfield, Dr. Bossey, Dr. Dewar, Mr. G. S. Gibson, Mr. J. B. French, the Rev. Andrew Bloxam, the Rev. H. Marsham, Mr. H. Taylor, Mr. T. Bentall, Mr. James Ward, Mr. J. Hussey, Mr. R. Withers, Mr. G. Lawson, Mr. W. B. Booth, Mr. J. Storey, Mr. S. Hailstone, Mr. B. D. Wardale, Mr. James Bladon, Mr. J. L. Lawrence, Mr. F. Barham, Mr. J. W. Salter, the Rev. T. Butler, Mr. S. P. Woodward, Mr. T. Moore, Mr. E. G. Varenne, Mr. D. Price, Mr. J. Reynolds, Mr. G. Cooper, Mr. J. Rich, Mr. G. Rich, and Mr. G. E. Dennes.

W. Brown, Esq., G. Hickman, Esq., R. Withers, Esq., and J. Stewart, Esq., were elected members.

Mr. W. B. Booth exhibited a specimen of *Erica Watsoni*, one of the intermediate forms between *E. ciliaris* and *E. Tetralix*, referred to the former species by Mr. Bentham, in De Candolle’s *Prodromus*, but to the latter species by Mr. Watson, its first discoverer many years ago. The specimen presented by Mr. Booth resembled both *E. Tetralix* and *E. Mackaii* more closely than it resembled *E. ciliaris*, although still inclining partially to the last of these three by its ventricose corolla. Though apparently a hybrid between the two, with intermediate characters, the aristate anthers assign it to *E. Tetralix* in preference to *E. ciliaris*.—*G. E. D.*

THE PHYTOLOGIST.

Occurrence of Filago spatulata at Inworth, Essex.

By E. G. VARENNE, Esq.

IF you and your readers are not yet quite tired of communications respecting *Filago germanica*, and its near allies, perhaps you will allow me to record the occurrence of *Filago spatulata*, *Presl*, in a field of cultivated land at Inworth, in this county, where it was growing in great profusion about the end of last month.

It may serve as a hint to botanists (who pursue their researches in agricultural districts in the autumn months) not to neglect to secure specimens when opportunity serves, to state that two or three days after discovering the plant, on visiting the locality with the view of obtaining a few specimens for distribution, I found the field entirely ploughed up and the habitat temporarily destroyed.

Filago spatulata is large and straggling, furnished with numerous loose leaves, which are all more or less spatulate, and nearly entirely conceal the young clusters of flowers. It bears a rough resemblance to large specimens of *Gnaphalium uliginosum*, and would have been passed over for the latter had not a few plants been gathered for examination. The mode of growth of this species in assuming the prostrate form is peculiar, and perhaps worthy of notice. In the few specimens which attempted to grow erect, the branches hung downwards from the stem, somewhat after the manner of the branches of the weeping ash. A form with a short upright stem, from the lowermost portion of which several trailing branches were given off, was found about Kelvedon during the past summer.

The heads of flowers, when fully developed, have very little hairiness or down on the outer surface of the scales; the number in the cluster in those examined was about twelve. The clusters are neither numerous nor very conspicuous; and the regular divaricating character of the branches, as usually found in *Filago germanica*, is not to be met with in the Inworth specimens of *Filago spatulata*.

E. G. VARENNE.

Kelvedon, Essex, November 13, 1848.

List of the rarer Plants growing near Doncaster and Huddersfield.

By ELIHU BERRY, Esq.

IN your November number of the 'Phytologist,' there are two articles treating on the distribution of the rarer plants growing in the neighbourhood of Doncaster and Huddersfield; in continuation I beg leave to forward for your insertion in the next number, some of the rarer plants growing about Barnsley, a locality mid-way between the above places; should this be acceptable to your readers, I shall in future extend my researches, and report upon them.

Ranunculaceæ. *Ranunculus hederaceus*, in a pond corner of White-cross-wood, Worsbro' Dale, plentifully, and several other places.

Nymphæaceæ. *Nymphæa alba*, abundant in the river Dearne, two miles below Barnsley.

Fumariaceæ. *Fumaria claviculata*, in Mottram-wood.

Violaceæ. *Viola odorata*, about Monk Bretton priory, and the Yews-farm.

Leguminosæ. *Anthyllis Vulneraria*, on the canal bank by the Oakes-farm. *Arthrolobium ebracteatum*, in the same situation.

Rosaceæ. *Sanguisorba officinalis*, in the meadows side of the Dearne below Barnsley.

Onagraceæ. *Circæa Lutetiana*, abundantly in the above locality.

Umbelliferæ. *Cœnanthe Phellandrium*, in a pool by Cliffe-wood. *Sanicula Europea*, in a coppice, Pag-moor. *Apium graveolens*, Grange-lane. *Ægopodium Podagraria*, side of the Dearne below Monk Bretton priory. *Angelica sylvestris*, White-cross-wood. *Torilis Anthriscus* and *Anthriscus sylvestris*, very common here.

Araliaceæ. *Adoxa Moschatellina*, in a shady lane by the side of the Dearne, near the village of Ardsley.

Valerianaceæ. *Valeriana officinalis*, in Scorah-wood, Ardsley.

Compositæ. *Inula Conyza*, in a field by Smithy-wood. *Chrysanthemum segetum*, one mile north of Barnsley. *Centaurea Cyanus*, in a field on Burton bank.

Labiataæ. *Scutellaria galericulata*, on the canal banks, Ardsley. *Ballota nigra*, about Monk Bretton. *Clinopodium vulgare*, on the road-side going to the railway station. *Lycopus Europeus*, in the Grange-lane.

Plantaginaceæ. *Plantago Coronopus*, on Nesbro-hill, plentifully.

Alismaceæ. *Sagittaria Sagittifolia*, in the canal, Ardsley, plentifully.

Naiadaceæ. *Potamogeton perfoliatus*, ditto.

Liliaceæ. *Allium ursinum*, plentifully in the woods.

Juncaceæ. *Juncus bufonius*, abundant in every moist place, along with several other species.

Iridaceæ. *Iris Pseudacorus*, plentiful in the bottom of Scarah-wood, Ardsley.

Filices. *Polypodium vulgare*, *Asplenium Trichomanes* and *Rutamuraria*, plentifully on the garden wall, Swarthe-hall and Birk-house.

Graminaceæ and *Cyperaceæ.* I have omitted to mention their distribution and localities, as sometime I may favour you with a separate article upon them.

ELIHU BERRY.

Park-house, Barnsley, Yorkshire,
November 13, 1848

Occurrence of Udora in the Lene, near Nottingham.

By MISS MARY KIRBY.

MR. JAMES MITCHEL has kindly favoured me with a specimen of *Udora*, not in flower, but apparently identical with the plant of Foxton reservoirs, discovered by himself in the Lene, a rather rapid and very dirty stream, tributary to the Trent. After the subsidence of a flood, Mr. M. informs me, his attention was arrested by pieces of *Udora* left upon the grass in Nottingham meadows; he traced the plant to the river, and found it growing in great profusion for about a quarter of a mile in extent.

Will you allow me to insert a few addenda to the 'Flora of Leicestershire,' for which I am indebted to botanists in the county? The note of interrogation to the *Ophrys apifera* may be erased, the Rev. T. C. Holland having supplied me with the locality "near Kegworth."

Ranunculus Lenormandi.

Fumaria micrantha.

———— *capreolata.*

Mr. Holland observes, "It is remarkable that this flower, which was not previously in the field, has sprung up profusely on every heap of earth thrown up in digging the foundations of the nunnery at Loughborough."

Vicia Bobartii.

Lonicera Xylostereum.

Galium erectum.

Centaurea nigra, var. *radiata.*

Orobanche elatior.

Festuca myurus.

Avena strigosa.

Lolium multiflorum.

Glyceria plicata.

MARY KIRBY.

Friar Lane, Leicester, November 14, 1848.

Note on, and Query respecting the Flowering of Mentha sylvestris.

By GEORGE LAWSON, Esq.

YOUR correspondent Mr. Snooke, whom the inaccuracy of our Floras led to walk a distance of eleven miles and back in vain, in search of the lovely Menyanthes, will no doubt find many sympathizers among your readers, for few field-botanists there can be but have occasionally experienced disappointment and chagrin in a similar way.

In the end of September last I, too, found occasion to enter into deep sympathy with Mr. Snooke, having, along with a friend, walked eleven long miles and back in the vain hope of seeing *Mentha sylvestris* in flower, at our Sidlaw Hill station. I had previously seen the broad patches of the plant in August; but there was at that time no appearance of its flowering, and as the months of August, September, and October are those indicated in botanical works as the flowering period, I thought the end of September a good time, and accordingly set out at that time on a journey to the station to see the plant in flower, being accompanied by my friend Mr. John Syme. However, on arriving at the *Mentha* ground, we could trace no symptoms of flowering, and although the plant seemed in good health, there was no reason to suppose it would flower this season, the season being so far advanced, and not the slightest appearance of a flower-bud.

I do not mean to find fault with our botanical authors for our Sidlaw plant not flowering this season, the object of the present note being to inquire whether the *Mentha*, in the more genial clime of England (where I believe it is not a rarity as with us), is ever observed to remain barren for a season? If not, may the circumstance of its not regularly producing flowers at the Sidlaw station militate against its nativity there? Perhaps some of your kind southern readers may feel sufficient interest in the subject to favour us with the result of their observations in an early number of the 'Phytologist.'

I never saw the *Mentha* in flower, and my deceased esteemed friend Mr. William Jackson for once informed me that he had never seen it either, although he had often botanized in the Sidlaw district; but its flowering period (if my memory serves me rightly) is stated in the 'Forfarshire Flora' of Mr. Gardiner as August, September, October, and it would be useful, as well as interesting, for local naturalists to pay the station a visit during these months, for a series of years, and ascertain how often it does flower.

I may add that the plant grows abundantly by the wayside; but nowhere on the undisturbed natural heathy ground around, and this circumstance may form a slight additional objection to its nativity, if the other is sustained.

GEORGE LAWSON.

7, Saunders Street, Stockbridge,
Edinburgh, November 14, 1848.

Notice of a New Locality for Anacharis alsinastrum, Bab. [Udora, see *ante*, 387]. By THOMAS KIRK, Esq.

A FEW days ago, being in the neighbourhood of Watford, Northamptonshire, I paid a visit to Watford Locks, on the line of (I believe) the Junction Canal, thinking that as the locality is on the same line of canal as Foxton Locks, the *Anacharis* might be found in the reservoirs attached thereto. As soon as I arrived within sight of the reservoirs, I noticed that the further end of the upper one was covered with what at that distance appeared to be a species of *Potamogeton*, or *Myriophyllum*, but which on a closer inspection proved to be *Anacharis alsinastrum*, Bab. A further search showed it to be abundant in all four of the reservoirs; in some places being as much as eighteen inches or two feet below the surface of the water, and in others, more particularly in the upper reservoir, floating on the surface, but very abundant in all four.

Although I searched diligently during the short time I spent at the locality, I could not detect the least vestige of fruit. The stems are two feet or more in length, and the whorls of leaves much farther apart than in a Leicestershire specimen in a state of fructification, which I possess through the kindness of the Rev. A. Bloxam. That gentleman, however, thinks it a similar species. Probably the difference is only owing to the season in which the specimens were gathered.

The summer and winter states of many aquatics are widely different. I observed that when water was drawn from the reservoirs into either of the locks, the force of the current detached small sprigs of the *Anacharis*, which were carried through the slime into the lock, and thence into the body of the canal, so that in all probability other localities exist in the canal itself, as well as in reservoirs belonging to it.

The circumstance of this locality being connected with that at Foxton Locks, will strengthen the opinion of those botanists who regard the *Anacharis* as an introduced plant. I think there can be little doubt that one locality was supplied from the other; as apparently only female plants are found in each, but how it was originally naturalized in either of these *artificial* situations I can scarcely conjecture. Altogether, I think all the recorded localities in this country seem rather to prove it an introduced plant than a true native.

THOMAS KIRK.

Coventry, November 18, 1848.

Notes on the Flora of Dumfriesshire. By WILLIAM STEVENS, Esq.

THE accompanying observations on the rarer portion of the Dumfriesshire Flora, have been made on various occasions during the last twelvemonth's residence in that county. I do not, of course, pretend to give a complete list of all the rarities which may occur in the district, the species here enumerated being only such as have come under my own actual observation; but such as they are, they may contain some little not unworthy the notice of those who feel interested in the distribution of our native Flora. I have given them in the form of an arranged list of species, so that any remarks upon the general features of the county would be superfluous, but it will be seen that in a botanical point of view it is by no means uninteresting.

Ranunculus Lenormandi. This is of frequent occurrence in pools and ditches about Thornhill; particularly abundant in a ditch by the road-side near the ruins of Carlaverock Castle, on the Solway coast, also in the neighbourhood of Moffat.

Thalictrum alpinum. Plentiful in a rocky ravine near the Saddleback, and upon other hills in its vicinity.

Subularia aquatica. Loch Skew, intermixed with *Littorella lacustris*, which latter is by far more abundant.

Barbarea stricta. Waste ground by the Skarr water, near Penpout ; it also occurs in two or three localities by the side of the Nith, between Thornhill and Dumfries, but sparingly.

Viola lutea. There is a purple-flowered variety extremely abundant on nearly all the hills bounding the county of Dumfries to the east, and indeed in almost every meadow and bank in the upper part of Nithsdale, but I have only seen the true yellow form in a single spot upon the Leadhills, near the village of Wanlockhead, where there are growing together yellow, purple, and white, with almost every intermediate shade of colour.

Geranium sylvaticum. Nithside, in Drumlanrig woods, plentiful ; a variety with the flowers much smaller, and of a rose colour, occurs in a plantation by the side of the Edinburgh-road, near Carron-bridge ; it is probably the same as that mentioned in Bab. Man. as found at Dollar, by Dr. Greville, and which the author supposes to be the var. *β. fastigiatum* (Fries).

Callitriche pedunculata, *β. sessilis*. Margin of Loch Skew, at the end nearest to the White Coombe.

Saxifraga stellaris. Common upon the hills on the north side of Annandale ; at the face of the Gray Mare's-tail, growing with a profusion of *S. oppositifolia*.

Carum verticillatum is of frequent occurrence in marshy meadows around Penpout, Thornhill, Dalvene, &c.

Enanthe Lachenalii. Salt marshes on the east side of the Nith, extending from about five miles below Dumfries to its confluence with the Solway.

Peucedanum Ostruthium. At the foot of Carron-bridge.

Valeriana pyrenaica. Drumlanrig woods.

Saussurea alpina. Rocky ravine near the Saddleback.

**Doronicum Pardalianches*. Banks of the Nith, Drumlanrig woods.

Erythræa littoralis. Plentiful on the Solway coast. Near the mouth of the Nith, in salt marshes.

Mimulus luteus. This plant seems to be naturalized in a wood near Tynron, and in a boggy meadow above Drumlanrig it is very plentiful and luxuriant.

**Hieracium rigidum*, *β. pictum*. On rocks above Dalvene pass, on the Lowther hills.

Myosotis repens. This species, which is far from being generally distributed, appears to be not uncommon over the south-east of Dumfriesshire, particularly about Moffat, where it may be seen with *M. cæspitosa* to supply the place of the usually common *M. palustris*.

Anagallis tenella. A rather rare plant in Scotland. I observed it growing with *Statice Limonium* in salt marshes on the Solway coast, near the mouth of the Nith. Is not this a somewhat uncommon situation for this plant?

Atriplex erecta and *A. deltoidea* are common, the former on dung-hills and waste places, and the latter in corn-fields about Thornhill and Drumlanrig.

Rumex alpinus. Several large plants by the road-side near Closeburn mills; and more plentifully by the side of a stream at the Eccles, near Penpout, but I have never met with it in flower.

Salix herbacea. Near and upon the summit of the White Coombe.

Habenaria albida. Heathy pasture near Penpout; Queensberry moors.

———— *chlorantha.* A few solitary plants in Drumlanrig woods.

Arum maculatum. Drumlanrig woods, sparingly.

Potamogeton lanceolatus. Stagnant pools at the foot of the Morton hills, near Locherben; ditch near Anchen Binzie Loch.

———— *gramineus.* Loch by the side of the Edinburgh-road, about five miles from Dumfries.

Juncus maritimus. Plentiful in salt marshes near the mouth of the Nith.

Carex pauciflora. Side of streams on the Lowther hills, near Dalvene pass; a very long and slender state occurs in a boggy meadow above Drumlanrig Castle.

———— *atrata.* Rocky cliffs on the top of a hill near Hartfell.

———— *rigida.* Summit of Hartfell, over a space of more than half a mile.

———— *extensa.* Marsh by the side of the Edinburgh-road, near Darrisdere; and in great plenty above the fall of the Gray Mare's-tail.

———— *capillaris.* Near Hartfell, in company with *C. atrata*.

———— *irrigua.* In a boggy meadow at the foot of the Morton hills, near the ruins of Morton Castle. The Dumfries locality for this plant has, I believe, been lately destroyed by drainage.

Avena strigosa. Corn-fields near Dumfries.

Rottboellia incurvata. Salt marshes on the Solway coast, near Carlaverock Castle.

Ceterach officinarum. On walls about Drumlanrig.

Woodsia ilvensis. This rare and handsome little fern I found in considerable abundance, on very steep, crumbling rocks, amongst the hills dividing the counties of Dumfries and Peebles, in July last; it is growing in dense tufts in the crevices of the rocks, and very luxuriant, many of the fronds measuring nearly six inches in length.

Allosorus crispus. Stony hills about Loch Skew, also very plentiful on the Morton range.

Asplenium viride. Moist rocks at the Gray Mare's-tail.

Hymenophyllum Wilsoni. Moist rocks in several places, as Dalvene Pass; Nithside; side of the Skarr water, near Penpout, &c.

Lycopodium selaginoides. Common on the Lowthers, Morton hills, and Nynron, at the latter place it is accompanied by *L. Selago*, *L. alpinum*, and *L. clavatum*.

WILLIAM STEVENS.

December, 1848.

Inquiry respecting Thalictum Kochii. By the Rev. D. BROUGHTON.

YOU would confer a favour on remote country simplers like myself if you would insert in your next the character of *Thalictum Kochii* (*Fries*), mentioned by Babington in the last edition of his Manual as possibly growing at Twll dŷ, in Carnarvonshire.

I gathered a *Thalictum* there in September last, which may possibly be the one he had in view; but being at the time, like Dr. Syntax, merely in search of the picturesque, and unprovided with any apparatus for the importation of specimens, and not being aware at the time of Babington's observation, I crammed the plant which I gathered into my hat, under a kind of impression that it did not exactly resemble any I had seen before; and so when I came to extract it for examination, it no more resembled its ownself than Tibault did after he was mangled.

The inflorescence is remarkably different from that of *Thalictum minus*. I am not acquainted with *Thalictum elatum* (*Jacq.*), but my specimen agrees better with Koch's description of that plant than any other, only I should characterize it as "*Floribus umbellatis verticillatisque*," not *subumbellatis*.

It does not correspond with either tab. 419 or 420 of *Jac. Flor. Aust.*, but is certainly more like the latter, only that the *caulis* is *sulcatus*.

I should not have troubled you with these observations but that perhaps they may stimulate the curiosity of other and better botanists than I pretend to be, or induce some one out of mere charity to correct the errors of your humble servant.

D. BROUGHTON.

Nantwich, December, 1848.

P.S.—*Thalictrum Kochii* is not mentioned, as far as I can find, by Koch, De Candolle, Walpers, or Steudel.

[*Thalictrum Kochii* (Fries). “Stem hollow, straight, naked, smooth, striated underneath the rounded and horizontally spreading auricles of the sheaths, petioles angularly ribbed, leaflets roundish 3-5 cleft paler underneath, panicle elongate erect, flowers scattered and with the stamens drooping, carpels from a short and very obtuse base ovate equal 10-ribbed.”

The above is the character assigned for *Th. Kochii* in the ‘Summa Vegetabilium’ of Fries. It will contrast sufficiently well with the character of *Th. minus*, as given in the second (*not* first) edition of Babington’s Manual, and may enable Mr. Broughton to decide for himself to which of the two species his specimen from Twll dû should be referred. In the absence of any specimen from that elevated locality, the inferences to be drawn from their distribution in Scandinavia, although yet too imperfectly ascertained, would point to some other of the subordinate species which have been included under the vaguely general name of *Th. minus*, as more likely to occur at Twll dû.—*H. C. Watson.**]

Notes on a Botanical Excursion in Roxburghshire.

By ARCHIBALD JERDON, Esq.

ON the morning of the 7th July last, I set out to fulfil a long-planned excursion with a friend who resides in the village of Denholm, about halfway between the towns of Jedburgh and Hawick. As I rode, the day, which had been fine in the morning, became dull and misty, but I continued my journey in hopes that it might clear up again. I arrived at my friend’s about 11 o’clock, and we immediately started on our expedition.

We first bent our steps to Denholm-dean, an extensive wooded glen near the village, and proceeded up it for about half a mile. Here we met with *Pyrola media*, and saw where *Carduus heterophyllus* had been, for the flowering stems had been cut over, probably by some of the villagers procuring litter for their cow or pig. My friend also pointed out a small patch or two of *Melampyrum sylvaticum*, which I had never seen before, the species commonly found in our

* Obligingl communicated at the request of the Editor.

woods being *M. pratense*. We saw also *Veronica montana* in a damp, moist spot.

On emerging from the Dean we passed through several fields, and then began to ascend Ruberslaw, a conical hill of the trap formation, rocky towards the summit, which attains an elevation of about 1400 feet above the level of the sea. The hill is barren and infertile, stunted heather (*Calluna vulgaris*) forming the chief herbage, and the trees in a belt of plantation which nearly encircles it, at no great distance from the top, are few and deformed. Nevertheless, we found one or two plants worth mentioning. As we ascended, a single plant of *Listera cordata* was gathered on the open hill-side, and *Orchis maculata* and *Gymnadenia conopsea* grew in some abundance in the same situation. In a small hollow *Lastræa Oreopteris* was plentifully mingled with *L. Filix-mas*.

We reached the summit without much difficulty, but rain and wind did not let us long enjoy the beautiful view, which comprehends nearly all Roxburghshire and Berwickshire, and is bounded only by the distant Lammermuirs and Cheviots towards the north and east, and by the hill-country of Roxburgh and Selkirk shires towards the south and west. Among débris of rocks near the summit we found *Allosorus crispus* abundantly, and in crevices of the rocks *Lycopodium selago*, in small quantity.

We descended the hill on the north side somewhat wet and uncomfortable, and no rarities met our eyes, unless a few specimens of *Veronica scutellata* in a marshy spot can be considered as such.

After refreshing ourselves at my friend's house in the village, we again sallied forth to explore Minto Crag, an abrupt eminence clothed with wood on the opposite side of the river Teviot. Crossing this river by a suspension bridge close to the village, we walked along its banks for some distance. Here my friend pointed out a large patch of *Euphorbia Esula*, growing in a bushy spot in the heugh or level waste ground which borders the river's "wild and willowed shore." At this juncture rain again prevailed much to our discomfort, but we trudged on determined to accomplish our purpose. There are walks formed on the side of the Crag, at various heights, besides a carriage drive at the foot, and we gradually wound our way to the summit, where are the ruins of a small tower or border-keep.

In our way up we found, growing on the rocks, *Lychnis viscaria*, which had nearly done flowering, *Sedum reflexum*, not yet in flower, and *Geranium lucidum*. Near the top *Sedum acre* was plentiful, and the great rarity of the place, *Asplenium septentrionale*, filled the cre-

vices of the rocks in some abundance. In the old castle *Asplenium Adiantum-nigrum* hung gracefully here and there from the corners of the walls.

Minto Crags are also of the trap formation, but the rock is harder and denser than that of Ruberslaw. They form a very picturesque object, the base being strewn with large masses of rock, of every shape and form, and the grey face of the precipitous parts contrasting well with the green foliage of the trees, which clothe the crags from head to foot.

The day wearing on, we returned to Denholm, after visiting the beautiful flower-garden at Minto House, and I wended my way homewards much pleased with my excursion.

ARCHIBALD JERDON.

Mossburnford, near Jedburgh,
November 29, 1848.

BOTANICAL SOCIETY OF LONDON.

Wednesday, November 29, 1848.—Twelfth Anniversary Meeting. John Edward Gray, Esq., F.R.S., President, in the chair.

Donations of British plants were announced from Mr. Thomas Bodenham, Mr. J. D. Salmon, Mr. J. Tatham, junr., Mr. T. Sansom, Miss M. Beevor, the Rev. W. W. Newbould, Dr. Wood, Mr. F. Brent, and Mrs. Atkins.

Foreign plants had been received from Mr. Anderson.

The Secretary read the annual Report of the Council, from which it appeared that 23 new members had been elected since the last Anniversary. The distribution of specimens to the members had given the greatest satisfaction, and many valuable specimens had been received from members, and other botanists, for distribution during the ensuing season. The Report was unanimously adopted; after which a ballot took place for the Council for the ensuing year, when the Chairman was re-elected President, and he nominated John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., Vice-Presidents. Dr. Cooke and J. W. Rogers, Esq., were elected new members of the Council, in the room of John Coppin, Esq., M.A., and Dr. Parkin, who retire in rotation. Mr. J. Reynolds and Mr. G. E. Dennes were respectively re-elected Treasurer and Secretary. Mr. Thomas Moore was elected Librarian.—*G. E. D.*

Note on Rubus nitidus of the 'Rubi Germanici,' and on some Specimens so named in the Smithian Herbarium. By EDWIN LEES, Esq., F.L.S.

IN my last communication there are two errors (one at least attachable to the compositor), which it will be best to correct forthwith, especially as I thus unintentionally, as the context shows, misrepresent my accurately-observant friend the Rev. Andrew Bloxam. It is stated at p. 363 that Mr. Bloxam had informed me that Mr. Babington's *plicatus* was identical with my *leucostachys*, the fact being, as shown by the very title of the paper, that it was Mr. Babington's *nitidus* to which Mr. Bloxam's information had reference. The other misprint, at p. 360, is "*caule folii feré glabro*," as if Weihe & Nees had stated the stem of *nitidus* to be *almost* smooth instead of quite so, without any qualification, the words being, "*caule foliifero glabro*,"—the *leafy* or barren stem entirely smooth.

Being thus obliged to take up my pen, it may not be amiss to improve the opportunity by a few remarks on the specimens named *nitidus* in the Smithian herbarium, which will be a supplementary aid to my former observations, and at all events show what Sir J. E. Smith truly meant by his designations *R. nitidus* and *R. affinis* in the 'English Flora.' When an eminent botanist, like Mr. Woods, says in a former number of the 'Phytologist,' that he never ventures to offer an opinion on a bramble, one ought, perhaps, to feel a little diffidence when pronouncing a decision on dried specimens of *Rubi*; but an experience of more than a dozen years among thorny thickets enables me to recognize the physiognomy of my old lacerators, and so fearlessly (if I may be pardoned the vulgarism) come up to *the scratch*. I have been often asked what there could be worthy of attention in a common blackberry or thorny briar? But I can truly say in reply, that from the stony woods of the Cotswolds, where the ruby fruit of *R. saxatilis* adorns the broken oolite, to the deep glens of Devon, where the roaring Lyn is shaded by almost ever-verdant, drooping shrubs of *R. suberectus*; nay, on to the sandy dunes of the shores of North Wales, where the dewberry spreads its bloomy drupes among a matted mass of creeping stems; or with flowering raspberry bushes in the odorous and balmy woods of May; to say little of the sable clusters beautifying the hedges of autumn on woodland height or in sequestered dingle; I have found abundant food for enjoyment, reflection and observation. It is true that I have occasionally re-

ceived an unkind cut or rough detainer from a surly, straggling bramble on whose toe I have trodden, but there is a moral lurking even here; for friends are occasionally snappish as briars, and it saves further laceration to *unhook quietly!* But to come out of this thicket of digression, and return to the Rubi in the Linn. Soc. Museum.

There are several specimens in the Smithian herbarium named *R. nitidus*, which I shall remark upon in order, but Smith himself in the 'English Flora' refers only to *three*, upon which he founds his description; one from Snelsmore Common, near Newbury, Berks, sent by Mr. Bicheno; another from St. Leonard's Forest, Sussex, from Mr. Borrer; and a third from Shropshire, communicated by the Rev. E. Williams. One error of necessity begets another, and Sir J. E. Smith, as I have shown in my last paper on *R. leucostachys*, having mistaken *R. plicatus* of W. & N. (misled, probably, by the deceptive name), certainly includes under his *nitidus* decided specimens of *R. plicatus*, Rub. Germ. Thus Williams's specimen, ticketed "No. 7, from Shropshire," is the plant now described as *plicatus* by Mr. Babington, and no doubt belonging to that species. The brambles from Snelsmore and St. Leonard's Forest seem to be not precisely the same as the Shropshire plant, but rather small specimens of *suberectus*, though really not very far removed from the described *nitidus* of Esenbeck. Mr. Bicheno had provisionally named them *ericetorum*, which name still remains in some collections, but Welsh specimens of *suberectus* are almost exactly similar.

What appears to me to be the true *R. nitidus* of Rub. Germ., with *bright red flowers*, and quite agreeing in its smooth stem and *suberect* habit with the German plant, I have found in Devonshire, and if I am correct in this, the German *nitidus* is, as Esenbeck declares it, a variety of *R. plicatus*. In fact, after much thought and incessant examination, I incline to agree with the late Mr. Bicheno,* whose judgment was pretty clear on the subject, that *R. suberectus*, *fissus*, *plicatus*, *fastigiatus* and *nitidus* (*W. & N.*), are really only forms of one variable, but decidedly *suberect* and *non-rooting* species. The specimens, then, named by Smith *nitidus*, are referrible to *plicatus* and *suberectus*, and it is only these that Professor Lindley could have had in view in the first edition of his Synopsis, where he describes *R. nitidus* on the "authority of Smith's English Flora." Yet in the second edition, probably from a reconsideration of the specimens, he refers Smith's *nitidus* to *affinis*, which, though wrong as to the name,

* See a letter from that botanist to Sir J. E. Smith, preserved with the Rubi in the Smithian herbarium.

is *partially* right, as he considers Smith's plants to be identical with Mr. Borrer's *R. plicatus*, E. B. Supp. 2714, which he also refers to *affinis*. I can see no reason for believing, with Dr. Bell Salter (Phytol. ii. 101), that Smith drew up his description of *nitidus* from "another species, *R. cordifolius*," as he calls it "a *slender* straggling plant," which can scarcely be said of well-grown plants of *cordifolius*, and he refers, besides, distinctly to Williams's specimen, which is indubitably *R. plicatus*.

I shall now glance for a moment at the *R. affinis* of Smith's 'English Flora,' and the specimens he refers to in confirmation of it. Mr. E. Forster is the authority for the specimens: one from "a lane at Hatfield, Sussex," and "also in Epping Forest." The identical specimen from Hatfield still exists in the Smithian herbarium, but strange to say, I find it to be a variety of Lindley's *leucostachys*, with a *hairy* barren stem, and therefore not essentially different from Smith's *plicatus* (not of W. & N.), for which I have proposed the name of *Lindleianus*. Indeed, part of Smith's description would suit very well for the latter, where he mentions its "densely downy panicle," and "panicle more or less compound and corymbose, apparently somewhat *glutinous*, but not evidently glandular, nor at all bristly." Smith, however, seems to have been dubious as to this bramble; for under Mr. Forster's name "*R. affinis*?" is written "I think so, J. E. S.;" and in the 'English Flora' he observes that "the species requires further investigation." It is remarkable that the specimen from Epping Forest, which also seems to be a small form of *Lindleianus*, was sent by Mr. Forster ticketed "*nitidus*," but Sir J. E. Smith writes beneath, "rather *affinis*, J. E. S.," so that the *affinis* of 'English Flora' is but the *leucostachys* of Lindley, and essentially the same as Smith's *plicatus*, which I have shown to be *not* the *plicatus* of the 'Rubi Germanici.' There is still another specimen marked "*nitidus*" by its collector, in the Smithian herbarium, and noted as sent from Esher, Surrey, by "E. F." I presume Edward Forster, Esq., now one of the Vice-Presidents of the Linn. Soc., and this is certainly the *leucostachys* of Lindley, Leighton and myself, which we all erred in so naming, while Smith and Bicheno were also incorrect in referring it to *plicatus* and *affinis*. Indeed, to this last-mentioned specimen Smith has very dubiously assigned the name "*affinis*?—J. E. S." The same spell of misapprehension appears to have infected every botanist touching upon this unfortunate bramble; for Mr. Borrer, in the third edition of Hooker's "British Flora," actually refers the *R. affinis* of Smith's 'English Flora,' described from

the specimens above mentioned, to *R. Kœhleri*, γ . *pallidus*, a very glandulose bramble, although it is expressly stated by Smith that the panicle is not at all bristly or setose, and the specimens preserved distinctly negative its belonging to the glandular group.

The true *affinis* of Weihe & Nees in '*Rubi Germanici*,' has been but recently brought before the notice of British botanists; for mistaken by Smith and Lindley, and undescribed by Mr. Borrer, the *name only* occurs in Mr. Babington's Synopsis as a synonym of *corylifolius*, the latter, or rather my *sublustris*, having been mistaken for it, so that this bramble is absent altogether from Mr. Babington's Manual. I have brought it forward in my arrangement of the Rubi in Dr. Steele's '*Hand-book of Field Botany*,' and it is satisfactory to observe that Mr. Babington here coincides with me, having in the Supplement to his Synopsis, No. II., identified the plant there mentioned with specimens gathered in Cowleigh Park, Malvern, where I pointed it out to my indefatigable botanical friend the Rev. Andrew Bloxam. I have since more fully studied this bramble, and agree that its correct position is in the suberect section, as stated by Mr. Babington in his Supplement. In fact, I have observed the very smooth barren stems rising erect ten or twelve feet in the air before bending, nor have I been able to detect any of them taking root. Luxuriant specimens have the panicle very broad and compound, hairy, with numerous, spreading, corymbose branches foliaceous almost to the summit. It appears to require moist ground to grow to full perfection, and I observed it this year growing very high and beautiful in damp thickets below Moorall's Well, Colwall, Herefordshire, where it produces fine fruit, not the case in dry situations, which shows an affinity to the habit of *R. suberectus*. To the localities Mr. Babington has mentioned I can add Horsenton Wood, Middlesex, and Ecclesbourne Glen, near Hastings, Sussex. That *R. affinis* may be closely related to *nitidus* of Rub. Germ. is highly probable, but it is altogether different in appearance and habit from the bramble I have designated as *Lindleianus*, nor when once known can they be confounded or mistaken. *R. affinis* is a lofty, aspiring shrub, emulating its suberect congeners, but the other, it must be truly stated, is really a prickly, grovelling plebeian, like others of the same family, though as distinct in itself, deserving a place on the roll.

EDWIN LÉES.

Cedar Terrace, Henwick, Worcester, *sent me a fine specimen of the plant*
December 4, 1848.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 383).

Eryngium maritimum. Sea-coast in several places. On Ryde Dover very sparingly, if not now quite extinct, through building. Abundant on the sandy spit at Norton by Yarmouth, and at St. Helen's. West side of the mouth of the Newtown River, plentifully. Shore near E. Cowes; Mr. W. D. Snooke. Common along the south beach of Hayling Island. A variety with the stem leaves and flowers rose-coloured grows at St. Helen's, Isle of Wight.

Hydrocotyle vulgaris. Very common in low, boggy meadows and damp pastures in the island and county.

Apium graveolens. Ditches and marshy places, chiefly on or near the coast, and where the water is brackish. Plentiful in many parts of the Isle of Wight, as on Ryde Dover, at Binsted, Yarmouth, Freshwater, &c. Common in ditches of fresh water about Brixton or Brightstone, Isle of Wight. Frequent on the mainland of Hants, along the coast. Abundant at Emsworth and betwixt that and Havant in various places. Hayling Island, Lymington, &c.

‡ *Petroselinum sativum.* Naturalized on old walls, banks and waste ground here and there in the island and on the main. I observed it abundantly on the shingly beach at Hurst Castle, in 1838, where it was being gathered for domestic purposes. Walls of Carisbrook Castle; Mr. W. W. Saunders!!! On the stone facing of the bank below the church at Newchurch, Isle of Wight; Dr. T. Bell Salter!!! In Luccomb Chine; Miss G. E. Kilderbee!!! I find it in other places in this island, perfectly and permanently established, but always near houses or buildings of some kind.

———— *segetum.* Very frequent, but rather uncertain in its times and places of appearing, on hedge-banks, in waste ground and cultivated fields over the greater part of the Isle of Wight, more especially on stiff clay soils. Common about Ryde, and abundant this year (1848) on earthen fence-banks along the new line of road from the Dover to St. John's, and on the hedge-bank facing the Infirmary. About Southampton, in Hayling Island, and probably not rare in mainland Hants. Maple Durham; Goodyer in Gerarde. In its singularly lax, wiry, nearly leafless habit, and imperfect, or rather irre-

gular umbels, this species has little affinity with the preceding, and more resembles some *Bupleurums*. Its depressed, radiating tufts of dark green, shining, root-leaves are common and conspicuous in our turnip-fields and fallows during winter; and in October last I noticed a large field near St. Helen's church, literally covered in parts with the radical leaves of this species, which was more than usually plentiful over the island generally during the past season. The fruit possesses considerable aroma. This species seems to be wanting over the greater part of Europe, and to be confined principally to the Atlantic coasts, abounding in the west of France, but unknown in Italy, Austria, and all the eastern countries.

Helosciadium nodiflorum. Profusely throughout the county and island, in ditches and shallow streams. A great nuisance in our marshy levels, its rank and rapid growth requiring constant exertion to keep the ditches clear of its long, procumbent, entangled stems, that are often as thick as the wrist, and in one summer will suffice to choke the drains, filling them so completely as to hide the water from sight. In a series of experiments I am making on the heat of springs, with a view of determining the mean temperature of this island, I have been compelled to abandon one of the most copious and uniform from the impossibility of gaining access to the source during at least half of the year, so completely is it concealed under an imperious covering of this encroaching umbellate. I have not yet seen ripe fruit of this species. The var. β . (*H. repens*, *Koch*) is not very unfrequent on the margins of ponds, ditches and on wet commons in the island and county. This, like the last, is principally restricted to the Atlantic parts of Europe, but advances a little farther eastward into western Germany and Switzerland.

————— *inundatum*. In several pools in the Isle of Wight, but by no means frequent. In partially dried-up pools above the shore betwixt Yarmouth and Hampstead. Abundant in a pond (now, I fear, quite drained) at the foot of Bleak Down, at the junction of the roads to Newport, Chale and Niton. Abundant in the shallows of the great pond on Petersfield Heath. In the first of these stations I found a form of *Myriophyllum alterniflorum* in considerable abundance some years ago, which I forgot to notice under its proper head in these Notes. In this variety the segments of the leaves were linear, not capillary, and the bracts under the staminate flowers linear-lanceolate and quite entire. This agrees in the main with the figure and description of Morison, as quoted in Smith's 'English Flora,' iv. p. 143, under *M. spicatum*, except that in Morison's plate the stem-

leaves are drawn of the usual tenuity, and the bracts obovate. That figure, if correct, represents *M. alterniflorum*, which, though accurately distinguished by Petiver, was lost sight of as a species by succeeding English botanists, and confounded with the very distinct *M. spicatum*.

Sison Amomum. Still more frequent than *Petroselinum segetum* (formerly referred to this genus), even to profusion, on banks, along hedges, road-sides, and borders of fields, but though often associated with that species, seldom straying with it into cultivated ground. Plentiful on hedge-banks in most of the suburban streets and outskirts of Ryde. Abundant about Yarmouth, and in various other parts of the Isle of Wight, as well as on the mainland of Hants. Nore Hill and Temple, near Selborne; Professor Bell! About Southampton, West Meon, in Hayling Island, &c. Called spikenard by the country people of Hants; Miss L. Sibley.

†? *Ægopodium Podagraria*. Scarcely to be called rare, but not very common, at least in the Isle of Wight, on damp hedge-banks and in orchards; seldom found remote from habitations, and yet I cannot but think it truly indigenous, from its universality in the country, its power of occupancy, and its analogy to certain other plants that, like the dog amongst animals, follow the footsteps and affect the haunts of man in all climates alike in which they are found, and flourish in places not more sequestered than these. Widely dispersed over the county, I find it at Andover, Winton, Selborne, Oak-hanger, Bordean, and other places. Less plentiful, I think, with us than in the north of England and Lowlands of Scotland, nor does it here perfect its fruit freely.

Bunium flexuosum. Abundant in meadows, pastures, and copses all over the county and Isle of Wight. *B. Bulbocastanum* may possibly occur on the chalk, in the north-eastern part of the county.

Pimpinella Saxifraga. Abundant in its several forms with the last, and equally universal. *P. magna* may reasonably be looked for in the county in woods and thickets.

Sium latifolium. Ditches and ponds; rare? Near Fording-bridge; Dr. Maton in Bot. Guide. In the Stour, at Heron Court, near Christchurch, Mr. Curtis in litt. (Icon. in Brit. Entom. ex loco). Unknown in the Isle of Wight, but probably not very unfrequent in the county, though I have as yet only the above two stations to record for it.

—— *angustifolium*. Ditches and ponds; rare? Certainly very scarce in the Isle of Wight. In ditches on Easton Marsh Freshwa-

ter Gate, also in a pool on the dislocated land betwixt St. Catherine's Point and Black-gang, in plenty, and in the Cyperus meadow at Old Castle Point. A plant or two has been found at Ventnor, and betwixt St. Lawrence and Old Park. I have no mainland stations to assign for this species as yet, but judge it not likely to be uncommon in the county.

Bupleurum tenuissimum. No unfrequent plant in salt-marsh ground along the coast. In several parts of the Isle of Wight, but not common. Near Ryde, Brading, Cowes, Yarmouth and Newtown. Wieor Hard, near Fareham; Mr. W. L. Notcutt. Abundant and very fine on sea-banks in Hayling Island.

————— *rotundifolium.* In corn-fields and their borders on the chalk; possibly not rare in the county generally. Extremely local in the Isle of Wight, but plentiful in the chalky corn-fields south-east of Yarmouth, near Thorley, Wellow and Calbourn, over a district of some extent. I had never seen it in any intermediate station till I found it July 7th, 1848, at the opposite extremity of the island, in a wheat-field, at a height of several (about five) hundred feet above the easternmost end of Sandown Bay, in some plenty. Mud Farm, near Avington; Dr. D. A. White. Corn-fields at Tichbourne and Owslebury; Mr. Wm. Pamplin in New Bot. Guide. The Euphorbia-like habit and unilateral mode of branching are very characteristic of this handsome umbellate.

Cenante fistulosa. In wet meadows, ditches and pools. Decidedly rare in the Isle of Wight, though tolerably plentiful in a few localities. At Easton Marsh Freshwater Gate, but rather sparingly. In several parts of Sandown Level, in the ditch at the fort, &c., more abundantly. Drains on the north side of Lake Common. Probably not rare on the mainland. I have received it from Mr. Whale, of Andover, but without locality, and believe I have seen and gathered it at Bishop's Waltham, and in the low grounds about Winchester, but find no memorandum respecting it amongst my notes. In a watery meadow near to Hook, by Hursley, not plentiful; Mr. William Whale!

————— *pimpinelloides.* In meadows, pastures, on heaths and by road-sides, one of the commonest of our Umbelliferæ over the entire Isle of Wight, but not equally abundant every year, being in some seasons even scarce, in others profuse, though in most, plentiful. With us it is not restricted to any particular soil, though evincing, perhaps, a preference rather for clay than chalk; nor is it more partial to dry than to damp situations, as I have seen low-lying hay-

fields quite white with it. It is likewise found with the following species (*Æ. Lachenalii*) in salt-marsh or brackish lands, as well as remote from salt water, and may sometimes be seen growing plentifully amongst wheat. I know but little of its distribution in mainland Hants, but suspect it to be rare at any distance from the coast, not recollecting to have once met with it in the interior of the county, or finding any memorandum to that effect. Plentiful in the borders of fields about Lymington, July, 1848. The periodical decrease or partial disappearance of the plant is remarkable in a perennial species, as this certainly seems to be in a garden. The round or oval knobs or tubers on the root are farinaceous, sweet and well-tasted, greatly superior to those of earth or pig-nuts (*Bunium flexuosum*), as being wholly devoid of acrimony, and might possibly be cultivated to advantage, as those of *Bunium Bulbocastanum* are said to be in Italy and Norway.

Ænanthe Lachenalii. In very wet salt-marsh land, also in damp pastures and heathy ground adjacent to the shore, and consequently where the soil is more or less saline, but far less frequent than the last, and invariably, I think, in the vicinity of salt water. Shores of the Wootton River, and along the Yar betwixt Yarmouth and Freshwater, in considerable plenty, in the latter station growing amongst the furze, on that part of Welmingham Heath contiguous to the river, and where the soil is comparatively dry. All over the marsh meadows at Easton Freshwater Gate. Salt-marsh pasture on the east side of Hayling Island. A most distinct and well-marked species from the last.

Of *Ænanthe peucedanifolia* I know nothing, except from description, the figures of Pollich and of 'English Botany,' and from an indifferent dried specimen. I think it highly probable it will be found to inhabit this county or island, and I have lately entertained a strong suspicion that some of my stations for *Æ. Lachenalii* given above, where the plant grows on the drier soils, may really belong to *Æ. peucedanifolia*. Does this latter never grow in or near salt water? I have a specimen of a plant gathered by myself at Bulverhithe, in Sussex, in 1834, which looks like *Æ. peucedanifolia*, but wants the characteristic tubers at the root, and has a many-leaved general involucre, but this last seems liable to considerable variation, being sometimes present and at other times wholly absent. From the description of Lloyd, in that excellent little work, the 'Flore de la Loire Inférieure' and whose account of these *Ænanthes* is admirable, the fruit of *Æ. Lachenalii* and *Æ. peucedanifolia* do not differ

much, for he says, "Fruit oblong cylindrique (*oblong* simply in *Œ. Lachenalii*) rétréci à la base, reserré sous le calice." Are the two species really distinct?

Œnanthe crocata. An extremely abundant and universal species in wet, boggy places, ditches, drains and sides of brooks throughout the Isle of Wight, and, as far as I have observed, the county generally. In the black, rotten soil of the deep, boggy thickets that occupy the hollows at the foot of the chalk downs, this rank and poisonous umbellate chokes the ground with a forest of tall but succulent and yielding stems, that emit a virose odour as they are successively broken down in forcing a passage through them. The plant is known in this island by the name of belder-root, and it is alleged, frequently proves fatal to swine that turn up and devour the large, fleshy tubers of which the roots consist. The existence of a yellow juice in this species, which gave rise to the specific name, has been a subject of controversy. Dr. Salter finds it in the plant of the neighbourhood of Poole (*Phytol.* ii. 116), and also, though of a paler colour, in others from Bembridge, in this island. I have never myself remarked such coloured juice to flow from fracture or incision here, but have now and then found minute masses of a saffron or orange yellow matter within the hollow of the stems, which had the appearance of an inspissated exudation of the proper latex.

———— *Phellandrium*. A common species apparently in mainland Hants, and thought to have been seen by the Rev. G. E. Smith and Mr. Curtis (*Brit. Entom.* xi. fol. 506), at the back of the Isle of Wight. I have never detected it here myself, where so many of our British aquatics are wanting or exceedingly rare, from the limited amount of water surface the island affords, and the insularity of position acting as a check to their dispersion over it from other parts. As neither of my informants seems certain on the point, I may fairly assume them to have been in error, because I am ignorant of any spot likely, or indeed capable, of producing a plant requiring the depth of water which this does, near the place specified, though in the marsh ditches at Freshwater and Sandown the total absence of this *Œnanthe* may justly excite surprise, considering how plentiful it is immediately on crossing the Solent. Abundant in ditches at Gomer Pond, Gosport. Plentiful with the following (*Œ. fluviatilis*) in clear streams around Wincher, Gill Copse, Titchfield River, the Saltens (near Fareham); Mr. W. L. Notcutt (*Phytol.* ii. 206). By the old canal at Millbrook (Southton), Id. in litt.

———— *fluviatilis*. In rivers and streams. Abundant in the

river Itchen, at Winchester; Mr. Babington!!! Christchurch; Mr. Borrer. I find it plentifully with the last in clear streams around the city, as in Winnalwater meadows, and growing in such quantity as to prove a great nuisance to the mills built over their swift and sparkling torrents. In the autumn, when the old stems decay and part from the ground, they accumulate by degrees, and form floating islands of great thickness and extent, blocking up the channel and floodgates, and unless prevented, clogging the mill-wheels. Such an island, of, I should say, forty or fifty yards in length and ten or twelve in breadth, I saw last summer floated away through the side sluice for the escape of the water when the mill is standing, at one of the principal flour-mills of the city, and the length of time consumed as the vast mass of entanglement sluggishly glided out of sight beneath the archway, though urged forward by poles, plainly showed the great weight of matter collected and its power in obstructing the stream. I have not yet had an opportunity of carefully examining this recent addition of the Rev. W. H. Coleman's to the British Flora.

Æthusa Cynapium. Frequent, and occasionally abundant in the county and Isle of Wight, in weedy gardens, corn-fields and waste ground. In 1838 I observed an extensive wheat-field at Beanacre in this island, quite overrun with it.

†? *Foeniculum officinale*. On waste ground, banks and cliffs along the coast; apparently rare in Hampshire, nor am I quite satisfied that it is truly indigenous to the county, though clearly so on many parts of the southern and eastern shores of England.* Very abundantly, and perhaps truly wild, on extremely steep banks facing the sea at the east side of Ventnor Cove, Isle of Wight, where it has existed to my knowledge long anterior to the buildings that now fill the cove. On a bank betwixt Luccombe and Shanklin in plenty, but in a spot not quite beyond suspicion. Occasionally about the borders of fields in several parts of the island, but mostly in single clumps, and in places unlike its truly natural stations. Plentiful on the south beach, Hayling Island, but only near the buildings and an abandoned garden, though it is *possible* it may not have had anything to do with one or the other, since the locality is just such as this species usually selects. The state of the pith in this plant affords no constant character; it is usually, I find, perforated in the centre with

* Certainly native: for instance, in Pegwell Bay, near Ramsgate, at Paignton, near Torquay, and various other places.

a hole of mostly small diameter, sometimes in the upper, sometimes in the lower part of the stem, the rest, and sometimes the entire stem is filled up solid throughout. The sweet fennel of the gardens and *F. piperitum* of Tenore are probably only varieties of our common wild species.

Libanotis montana (*Athamanta Libanotis*, *Sm.*) having now been found in Sussex, may with perhaps equal probability be expected on our Hampshire hills, the vegetation of this county inclining rather to the eastern than to the western type, though from its situation participating in the forms of both very strongly.

Silau pratensis. In rather moist meadows and pastures, on hedgebanks, by road-sides, and in open, grassy places in woods, frequent in very many parts of the Isle of Wight and of the county, but though a perennial, apt, I think, to become scarce in certain years, like *Ceanothe pimpinelloides*. Abundant in various places about Ryde, and particularly so this last summer of 1848, also about Brading, Yarmouth, Cowes, Wootton, Thorley, &c., very abundantly at times. Along the south-coast (Portsmouth and Brighton) railway, betwixt Portsea and Havant, and at Langston. Meadows at Andover, and betwixt Selborne and Oakhanger. Near Fareham; Mr. W. L. Notcutt. One of the neatest and prettiest of our native species of the order, with a powerful aroma, like the rind of the bitter orange.

Crithmum maritimum. On rocks and cliffs by the sea; very abundantly, but chiefly along the south and south-western coasts of the Isle of Wight. On rocky ledges of the cliffs behind Bonchurch, some hundreds of yards from the shore, plentifully. Profusely on the chalk cliffs from the Needles to Compton, also betwixt Ventnor and Niton, in Sandown Bay and elsewhere along the coast. About Southampton, Gerarde, and possibly in other places along the mainland shores of the county, but the line of the Hampshire coast is in most parts so low and flat as hardly to afford congenial localities for the growth of this valuable plant.

Samphire or sampire (a corruption of Saint Pierre, to whom this plant was dedicated, perhaps from its growing so much upon *rocks*) forms a yearly article of exportation from this island for pickling. The plant is collected at great personal risk by people called cliffsmen, who used to pay an annual tribute (now remitted) to the lord of the manor of Freshwater for the privilege of taking both this and the eggs of sea-fowl, that breed in vast numbers in the stupendous chalk cliffs, which rise, like impregnable ramparts, to 600 feet, at the extreme south-west corner of the Isle of Wight. The eggs (of

various species of gull) find a ready market in the metropolis at 2s. 6d. a dozen, and are considered a delicacy, though I am unable to ascertain to what class of persons the consumers belong. The samphire is consigned by the cliffsmen, packed in casks with salt water, to certain wholesale houses in London, by whom they are paid 4s. per bushel, cleaned and sorted. For smaller quantities, as when required for private consumption, the charge for collecting is one shilling a gallon. The samphire is considered in perfection when just about to flower, or towards the end of May, and the gathering lasts for several weeks, as the plants come successively into blossom. The herb, minced, is served up with melted butter, instead of caper sauce, in this island.

Angelica sylvestris. Extremely common everywhere, in damp or wet and boggy thickets, hedges, &c.

Peucedanum palustre? A specimen of this scarce species I saw August 13th, 1845, in the herbarium of the London Botanical Society, marked "Southampton, Mrs. Dennison," but without date, or other particulars to serve as a clew to its rediscovery in the county.

Pastinaca sativa. In pastures, waste places, borders of fields and woods; abundant in most parts of the Isle of Wight where the soil is chalky. Rare about Ryde, at Binstead stone-pits. Profusely in woods at Swainston, and plentiful about Luccombe, Bonchurch, Yarmouth, Calbourne, Carisbrook, &c. Common at Andover. Maindell chalk-pit, near Farcham; Mr. W. L. Notcutt!!!

Heracleum Sphondylium. Common everywhere in the county and island in damp woods, pastures and hedges. The var. β . *angustifolium* I once gathered near Ryde. Var. γ ., with pink flowers, below Marvel Copse near Newport, June, 1841.

Daucus Carota. In pastures, by road-sides and borders of fields, one of the most abundant and universal plants of its order over the entire county and Isle of Wight; our old, dry pastures are often quite covered with it.

—— *maritimus*? On cliffs, waste ground and grassy slopes by the sea in several parts of the Isle of Wight. Abundant on the steep banks in Sandown Bay, and about the cliffs and fields above Freshwater Gate. Plentiful at Bonchurch. By this name I have been accustomed to designate a plant very common along the coasts of this island, but which I am quite unable to distinguish by any constant character from *D. Carota*, from which it differs materially at first sight in its much stouter, very densely hispid stem, more hairy leaves with somewhat broader segments, larger umbels, often $4\frac{1}{2}$

inches wide, that are usually almost perfectly hemispherical in flower, but sometimes flat or slightly depressed, never, I think, so much cupped as in the common state of the species, and less deeply concave in fruit, with or without a coloured, abortive flower in the centre, the unexpanded flowers mostly rose-red, but becoming subsequently white. Fruit differing in no respect, so far as I can find on careful examination, from the common inland state of *D. Carota*; it is not therefore likely to be the *D. maritimus* of Withering, which last is not Lamarck's species of that name (see De Cand. Prod. iv. p. 211); whilst ours is probably identical with the plant alluded to in the Manual (p. 144), as apparently the *D. gingidium* of Linnæus, though it does not quite answer De Candolle's description of this latter. It agrees well with the descriptions, and very fairly with the figure, of *D. hispidus*, *Desf.* (Fl. Atlantica, i. p. 243, t. 63), which De Candolle says grows on sea-cliffs at Dieppe and Treport, except that the leaflets in our plant are more deeply incised, but this character I find variable. Should it be identical with *D. hispidus*, still I cannot regard it as anything but a form of *D. Carota*, rendered as it were more obese by the proximity of the sea, though the same effect is not always produced on the species by the maritime atmosphere, and the variety is found about the borders of the corn-fields 500 feet or more above the beach, and some distance back from the shore. De Candolle remarks of the genus *Daucus*, "*Species extricatu difficillimæ*," and the species-makers seem to have vied with the gardeners in getting the most they could out of the wild carrot. The Rev. G. E. Smith tells me he has traced our plant through every intermediate gradation from the ordinary *D. Carota* in this island, and my own observation goes far to confirm the same.

Caucalis latifolia. In corn-fields; very rare. About Crooks (or Crux) Easton, Hudson. Of this plant, which rests solely on Hudson's authority, I have seen no specimens. It is, however, a very likely species to occur in Hampshire. *C. daucoides* is still more likely to reward a search in the corn-fields of this county.

Torilis Anthriscus. In waste places, along hedges, borders of fields and woods; extremely common over the island and county. Though so much larger a plant, the fruit is considerably smaller than in the next species, and as Curtis has remarked (Fl. Lond.), is more aromatic. The secondary ridges are beset with only a double row of ascending, scabrous prickles, that are shorter and more distant than in *T. infesta*, and terminate in simple, straight, or erect, not spreading or deflexed points, as in that, the interposed rows of white,

appressed spinules, too, are quite wanting to this species. Stem rough throughout. Outer rays of the umbellets* longer than the ripe fruit.

Torilis infesta. An abundant and troublesome weed, as its specific name implies, in most parts of the county and Isle of Wight, in waste and cultivated land, by way-sides, and especially in cornfields, which are too often seen filled with it, to the discredit of the careless and slovenly farmer. Most prevalent on clay, and hence much too plentiful on our stiff wheat lands about Ryde and the entire north side of the island, where the eocene are the prevailing deposits. Stem smooth and polished below; outer rays of the umbellets shorter than the mature fruit.

——— *nodosa.* In dry, waste places, on banks, under walls, by way-sides, borders of fields, and amongst corn, by no means uncommon in the county and island, especially on chalk or gravel. Abundant on banks and earthen fences at Bonchurch, Ventnor, and in corn-fields at St. Lawrence. Extremely common in Freshwater parish, about Yarmouth, also about Ryde, Cowes, and in most parts of the island pretty frequent. At Andover, Lymington, Clanfield and elsewhere on the mainland, generally dispersed. The variety with the interior fruit of the umbel wholly granulato-tuberculate is the only form I have met with in Hampshire hitherto. It is said, however, to occur with all the fruit prickly; here it is only the outer hemicarps of the exterior fruit which are spiny, the inner hemicarps resembling those of the interior of the umbel in being simply tuberculated.

Scandix Pecten-veneris. An abundant weed everywhere throughout the county and Isle of Wight, in cultivated land, on fences and hedge-banks, &c. The “crow needles” of our rustics and shepherd boys.

Anthriscus sylvestris. In moist shady places, meadows, orchards, groves, hedges, &c., everywhere most abundantly.

†——— *Cerfolium.* A specimen of this, the garden chervil, is in the herbarium of the late Mrs. Robinson, of Fareham, gathered near that place. I once found it under the wall of a garden at Ryde, from which I ascertained it to have escaped, and it has since disappeared. I have collected it in a pretty well naturalized state at Farn-

* I here adopt the term *umbellets* from my excellent friend Dr. Darlington, of West Chester, Pennsylvania, in preference to *umbellules*, as being more congenial in the termination to the structure of the English language, and much superior to *partial umbels* in neatness, brevity and precision.

ham, in Surrey, but have never seen it, except in the above instances, from this county. Mrs. R's station, shown to me by her servant, who always accompanied her mistress when herborizing, was a hedge-bank in a field far from house or garden, and if there was no mistake, the locality might pass for an excellent one, but when I saw it, it was late in the year, and the plant had vanished for the season. Its true country seems to be the south-east of Europe, in Austria, Hungary, &c.

Anthriscus vulgaris. On hedge-banks and fences, in waste places, under walls, and in dry, sandy ground, particularly near the sea and about towns, but far from common in the Isle of Wight or county generally. On Ryde Dover, but sparingly, and likely to be soon wholly extirpated, also betwixt Ryde and Springfield in very small quantity. Profusely abundant on banks and fences betwixt Bonchurch and Ventnor, along the line of the old road, 1846 — 1848. Abundant at Sandy Bank and Sandy Way, just out of Shorwell, 1846. I have also found it at a great elevation on High Down, by Freshwater, and on lofty cliffs betwixt Whitwell and Niton. Plentiful on earthen fences at Clay Hall, between Gosport and Alverstoke by Haslar.

Charophyllum temulentum. An abundant species in woods, hedges, and waste places in most parts of the Isle of Wight and county.

Conium maculatum. A widely diffused, yet rather local species, both in the county and island, in moist woods, pastures and waste ground. Scarcely to be found within some miles of Ryde: a few plants amongst the ruins of Quarr Abbey. Abundant here and there about Brading, Yaverland, Luccomb, Bonchurch and along the Undercliff. Plentiful just out of Yarmouth, towards Thorley, and in various other places. Profusely in that garden of Hecate, Longwood Warren, near Winchester. A favourite station of this plant with us is along the top of the earthen fences which run across the downs, on which it flourishes prodigiously.

Smyrniium Olusatrum. In waste ground, amongst ruins, and on hedge-banks, also (and truly wild) on sea-cliffs, damp pastures and in shady lanes, in innumerable places in the Isle of Wight. Profusely along the crest of the shore betwixt Ventnor and Steephill, and in several places along the coast betwixt Bembridge and the Culver Cliff. Lanes near Foreland Farm. Plentiful in the area of Carisbrook Castle, and in a vast number of places over the island, in hedges, lanes and pastures, both inland and along the coast; in many of them probably the plant was formerly cultivated, but in others it oc-

curs as truly indigenous in my opinion as the celery (*Apium graveolens*) to which it has long since given place at the table. I am not prepared to state its distribution on mainland Hants. Mr. Notcutt and myself find it at Porchester Castle, a suspicious station, but it will probably be found in less exceptionable localities along the coast, remote from which I have never seen it assume an undeniably wild position.

Alexanders was formerly much esteemed for the table, boiled, and eaten like greens, even in the time of Dioscorides. Gerard says, "the roote hereof is in our age served to the table raw for a sallade herbe." It is not a little singular that this plant has long survived all record of its use in the Isle of Wight, its very name has been quite forgotten, and by a strange confusion of ideas, it shares with the genuine *Apium graveolens* the appellation of wild celery, and by that only is it known. This is the more remarkable, as both species are common natives of the island, and the latter of course in cultivation in every garden, whilst the former is constantly obtruding itself on observation in hedges and pastures about places where there is every reason to believe it must at one time have been itself a well-known and esteemed garden esculent.

N. B. — *Echinophora spinosa* has been indicated to me in a list of plants growing near Yarmouth, in this island. There can be little doubt but that an error was committed in this instance, notwithstanding there is every reason for believing the species to have formerly inhabited several parts of our coast, even to within a late period, as the authority for its occurrence is respectable, and not that of a single observer merely. Though quite a southern plant, its range may extend, like that of many other maritime species, considerably to the north of its ordinary limits, where circumstances are favourable to its propagation.

Adoxa Moschatellina. In moist, shady places, woods, groves, on hedge-banks and about the roots of trees; very frequent in the Isle of Wight, and as far as my observation extends, over the entire county. Common about Ryde, at St. John's, &c., where I gathered it in fine fruit, which I believe is not very usually perfected. The herbage of *Adoxa* has a perceptible musky scent in moist weather, or when wetted by dew or rain; that of the flower is less transient, more penetrating, with some pungency, and to myself recalls the idea of dilute nitric or hydrochloric acid, or the smell given out by slightly heated steel, as when a razor is dipped into warm water. Sir James Smith, who appears never to have seen the fruit of *Adoxa*, describes

it with Gärtner, whose figures are but indifferent, as one-celled. Other authors justly consider it as four-celled, the four angles of the placenta being very evidently prolonged into complete, though very narrow dissepiments. The square mass occupying the centre, and to the top of which the seeds are attached, is quite distinct from their pulpy envelope, and as much entitled to be called a placenta as in any dry or capsular fruit whatever. This curious plant is perhaps as nearly allied to Saxifragaceæ and Caprifoliaceæ as to the present order (Araliaceæ). Its relation to *Chrysosplenium* is obvious.

Hedera Helix. On old walls, rocks, trees and hedges, most abundantly. In no part of Britain, or elsewhere perhaps, is the ivy to be seen in greater profusion and luxuriance than in this island, and could the amount of surface covered by it be determined, it would probably be found to exceed that occupied by any other native plant, the common meadow grasses not excepted. The glory of the Undercliff, whose crags and rocky boundary walls are mantled with its garniture of green in lavish exuberance, contributing, with *Scolopendrium vulgare*, *Iris foetidissima* and *Rubia peregrina*, to the perennial verdure of that vast and romantic terrace.

Cornus sanguinea. Woods, thickets and hedges, all over the county and island in great abundance, constituting a considerable per centage of the ligneous vegetation, flourishing in nearly every soil and situation alike. Usually with us a slender shrub, but sometimes a small tree, twelve or fifteen feet high, with a single trunk of several inches diameter.

Viscum album. Not rare, I believe, on mainland Hants, though I have but few actual stations to record for a plant so generally frequent in the south-east of England as not usually to attract attention to its special places of growth. Hants; Mr. Wm. Pamplin in 'New Botanist's Guide.' Cams Park, and at Southwick, near Fareham; at the latter place plentifully; Mr. W. L. Notcutt. Hurstbourne Park, the seat of Lord Portsmouth, near Whitchurch, abundantly; Miss O. Hadfield! At Hursley, plentiful in and about the park on crab and hawthorn; Mr. Wm. Whale! Bishopstoke; the Dean of Winchester. Frequent, I believe, in the New Forest. Not found in the Isle of Wight in a native state, at least in the present day, a curious fact in the geography of the species, as the country is one to all appearance admirably suited to its production, abounding, as it does, with all the trees to which this parasite is most attached. Reiterated inquiries of the country people, who uniformly deny its existence, and fruitless personal search for several years, have convinced me that

some unknown, but insuperable bar is opposed by Nature to the spontaneous dissemination of the misletoe over this island, since, where it has been introduced from motives of curiosity, it has not multiplied and dispersed itself in the vicinity. Gathered some sixteen or eighteen years back in a wood at Apse Farm, near Shanklin, on crab and whitethorn, by Mrs. T. Harrington, as I was informed by the lady herself, but it cannot now be found there. A very maritime climate, as that of small islands, is possibly adverse to this plant, as it fails in Anglesea, the Western Isles, the Isle of Man?, the whole of Ireland, and is very rare in Scotland.

Sambucus Ebulus. In waste ground, about hedges, ruins, by roadsides and in pastures; very rare in the Isle of Wight, if not in the county generally. In hedges, borders of fields, and even amongst the crops, near St. Catherine's Point, in one place abundantly, also on banks by the road-side to the lighthouse, sparingly. In a large arable field under Ashy Down, a little above Kerne, where it proves extremely troublesome, from the obstruction the tough, creeping roots offer to the plough in its progress over the soil. I am told it grows in one or two other spots near Kerne, but more sparingly. Between Newport and Carisbrook Castle; Mr. W. D. Snooke. I have never seen it there. Between Luccomb and Bonchurch; Mr. S. Woods in Bot. Guide!!! and where I found it some years ago in very small quantity, and almost choked with grass and bushes, betwixt Chine Cottage and Rose Cliff. Near Carisbrook Castle, and near Housborn (Osborne?); Mr. E. Forster, jun. in Bot. Guide. In a field called West Close, on Ford Farm, near Red Hill; Mr. Wm. Jolliffe. It formerly grew in the orchard at Crooks Cottage, Middleton Green, but has not been seen there for many years. For the county I have but the following station at present: close to the palings near the turnpike at Warnford Park, West Meon; Miss Hawkins. Meadow adjoining the churchyard at King's Worthy, about two miles and a half from Winton; Dr. A. D. White. Amongst the rubbish and ruined foundations of the Priory, Selborne; Rev. G. White. Hedge in Selborne Park; Dr. T. B. Salter in Phytol. i. 1134. Some of these stations have a suspicious appearance, whilst others are apparently natural. I believe the Danewort to be a genuine native, but, like *Cynoglossum officinale*, *Atropa Belladonna* and some other plants, partial to soils containing nitrate of potash, thus accounting for its frequent appearance about churchyards, ruins, and similar places where that salt abounds, without supposing it to have been originally introduced by man's agency.

Sambucus nigra. Abundant everywhere in the county and island, in woods, thickets, copses and hedgerows. Var. β . Leaflets ternate, orbicular. *S. nigra*, ε . *rotundifolia*, D. C. Prod. iv. p. 323. By the road-side betwixt St. Lawrence and Niton; Mr. Wm. Wilson Saunders!!! The only tree I have seen of this curious form is the one above mentioned, and which has had the trunk apparently sawn off a few feet from the ground, but has since shot out branches vigorously, though I have not seen flowers. Cuttings planted in a garden at St. John's, near Ryde, preserve the trifoliate and rounded character of the leaves, but have not yet bloomed. I have seen this variety in the Botanic Garden of Trinity College, Dublin, and in that of Mr. Borrer at Henfield, but never saw it wild except in the present instance. Var. γ . Berries pale, nearly colourless. A single tree in a field-hedge below Mousehole, near Newchurch, Isle of Wight, November, 1845. Small thickets of scrubby elder and whitethorn constitute the sole ligneous vegetation on Longwood Warren, near Winchester, a tract remarkable for its desolate aspect, and the peculiarity of its floral productions, as I shall show hereafter.

The elder is one of those British arboreous vegetables which, like the lime and beech, has by some been considered doubtfully indigenous upon equally insufficient grounds, resulting from the want of careful observation and inquiry. Loudon says (Arbor. Brit. ii. p. 1028), "A native of Europe and part of Asia, in hedges, *coppices* and *woods*; *plentiful* in Britain in *like situations*, but probably not truly indigenous." Here we have a perfectly gratuitous assumption, unsupported by any reasoning whatever, and directly opposed to the conclusion naturally derivable from the preceding clause of the sentence. For if the elder be an acknowledged *native* of Europe and Asia in hedges, coppices and woods, and *plentiful* in Britain in *like situations*, the probability surely is not against, but absolutely in favour of its indigenous origin; for the perfect parity of condition in which it is found here and abroad leaves no room for any other inference, no space to insert and drive home the wedge of counter argument. Unless, therefore, some reason be advanced to qualify or invalidate the prior clause, which the author has not vouchsafed his readers, the latter has no claim on our attention or belief. The fact is, that in the south of England no shrub is more evidently and indisputably wild than the common elder, associated, as it is, in the most sequestered woods, with the wayfaring tree and the guelder-rose, and indeed more common and universal in its distribution than either of these last, the indigenous claims of which might just as reasonably

be called in question. That it is only naturalized through cultivation in Scotland and perhaps the northernmost parts of England, I am disposed to think probable, from the consideration of its geographical range on the continent of Europe, where it seems to advance a little beyond the limits of the wayfaring tree (*Viburnum Lantana*), which fails in Denmark and Scandinavia, whilst the elder reaches the southern part of both these countries. I question whether it is anywhere native beyond lat. 55° or 56° in Europe, as in all the floras I have consulted that relate to districts lying under and above these parallels, the elder is usually mentioned as found only about houses and villages, and in hedges (ad domos, pagos, sepes), and if my memory serves, it is in such half-wild situations alone that I have remarked it in Scotland, though I do not pretend to affirm this positively. Here, and over the south and middle of England it is a perfectly sylvestral tree, and as such, of the commonest occurrence. The key to Loudon's opinion may, I think, be found in a farther remark of his (same page) that "it is common in all parts of England in the neighbourhood of houses and gardens," situations in which that clever and laborious author would probably be oftenest in the habit of seeing it here and in the north, of which last he was himself a native. It is no argument against the question of spontaneity, that a shrub so useful as the elder is for various domestic purposes and for fences, should as often be found in the vicinity of habitations as in places remote from human occupation; the wonder would be if it were not so; its presence or absence in primitive woodlands is the point to be determined. I should not have dwelt thus long upon the supposed introduction of the elder into Britain, as I believe few, if any, of our *English* botanists at least, are disposed to doubt its claim to nativity, but I have done so to show on what flimsy grounds the contrary opinion has been emitted respecting this and some other of our indigenous trees and herbs, and which we know how readily it has been caught up and repeated from mouth to mouth, and copied from book to book,* in most instances without an attempt made or a reason advanced to prove the truth of the position. I may here remark, that much of the scepticism we see displayed on the subject we have just been considering, arises from a disposition, in some measure natural,

* In Selby's Work on British Forest Trees, for instance, in which much scope was afforded for original discussion and research into this interesting question, not a step has been made in advance of previous writers on the same subject, old opinions are repeated and acquiesced in, as if indisputable themselves, or it was too much trouble to controvert or refute them.

to regard objects that are strange to ourselves as adventitious elsewhere. The lime, for example, is familiar to most persons only as a planted tree; many pass their whole lives without knowing or even suspecting that our own woods in England spontaneously produce it, and being ignorant of, and not caring to know about its geographical distribution, hastily conclude it to be a stranger to the country, and are with difficulty persuaded to the contrary.*

I have been at much pains to discover a character betwixt our European elder and that of America (*S. canadensis*), and believe them to be hardly even varieties, though hitherto kept distinct by botanists of both continents. The latter does not usually rise so high as the European, and is thought to be less ligneous in texture. I have, however, repeatedly found it with stout trunks from four to six inches or more in diameter, the wood as hard as in the European tree. The leaflets are usually, but not always, longer and narrower than in our elder, and more frequently seven or nine than five, but I have

* Mr. H. C. Watson, speaking of *Tilia parvifolia*, says, "we must explain its present scarcity on the supposition that human operations have tended more towards extinguishing, than towards encouraging and diffusing the species in England."—*Cybele Britannica*, i. p. 243. This is no doubt a just remark so far as the treatment of the species is concerned, for being worthless as timber, it is usually cut for brushwood, and consequently seldom permitted to propagate itself in the natural way by seed. I think, however, that the epithet of "scarce" is not strictly applicable to the small-leaved lime; it is rather, like the hornbeam, a local than a scarce species, occurring in great abundance in certain parts of Essex, Suffolk, Lincoln and Beds, and not uncommonly in other counties of the south and east, though Mr. Watson would seem to credit it as chiefly native to the west of England. To me it appears to form a broad belt, variously interrupted, across the whole island, but with a tendency rather to an eastern than a western distribution, yet belonging, doubtless, to the English and not to the Germanic type. Being of little value, always kept low, and growing amongst other and better known, because more esteemed trees, it is often overlooked or disregarded even by the woodmen themselves, and hence appears rarer than it really is. I regret to see the dubious term of "denizen" applied to this truly British tree in the excellent and most original work I have just quoted, seeing that the weight of its authority will be used to countenance, if not perpetuate, what I am persuaded is a phytogeographical error. Mr. Watson is doubtless right in his conjecture that the typical form of the Linnæan *T. europæa* is our *T. parvifolia*. This is clear from the 'Flora Suecica,' because in Sweden the small-leaved is the only native form of the lime, unless, perhaps, in Scania, where, according to Fries, our *T. europæa* (*T. vulgaris*, Hayne) is spontaneous, though Fries does not consider the two distinct (Corp. Fl. Prov. Suec. i. Scan. p. 80), and both these and *T. grandifolia* were all included in the 'Species Plantarum' under *T. europæa*, a name which Fries retains as a common designation for the two former alone. For notices of the wild lime in England, see 'Correspondence of Ray,' published by the Ray Society, 8vo., 1848, pp. 43 and 237.

seen *S. nigra* in our English hedges assume the form and number of leaflets of the Canadian variety, and in all that regards the cymes and their flowers, berries and seeds, I can find no difference whatever on the most minute and oft-repeated comparison. *S. canadensis* abounds throughout America from Canada to Carolina and Georgia. I have carefully examined the living plant from Quebec to Savannah, and westward to Louisiana and Mississippi, and remarked no change of character or habit throughout this vast area, except that in the central and southern states it was mostly confined to swamps, whilst in New England and Canada it grew more in drier places, fences, &c., like the European tree, a difference attributable to the great diversity of climate under which it is found on that continent, requiring a cooler or warmer locality according to the latitude. I have seen this or our European elder thriving and flowering luxuriantly in the sultry gardens of Barbados and Trinidad, where it is cultivated for medicinal purposes. Loudon (*Arboretum Brit. Art. Sambucus*) observes of *S. canadensis*, that from the suffruticose character of the branches, and the comparative tenderness of the plant, it is only fit for dry shrubberies in favourable situations; a strange thing, if true, since this species must be exposed, over a great part of its native country, to a degree of cold far surpassing any to which it can be submitted in our own temperate land. Such a semi-herbaceous plant I have never fallen in with wild, and suppose some half-shrubby, foreign species of *Sambucus* may go under the name of *canadensis* in our gardens and nurseries. I have the true *S. canadensis* now copiously under cultivation from seed I collected in Upper Canada, and soon hope to establish its identity with our European elder by actual experiment.

Viburnum Lantana. In dry, elevated, or rocky woods and thickets, on bushy hills, banks and in hedges, sometimes on old walls; extremely common throughout the county and island, wherever the soil is at all calcareous. Less frequent on the clay or eocene formations, yet not uncommon about Ryde, in Quarr Copse, and most woods about that town. Abundant amongst the rocks at Eastend, and from thence all along the Undercliff a prevailing shrub. In upland woods betwixt Shanklin and Bonchurch, also about Newport, Carisbrook, Gatcomb, Shorwell, Calbourne, Yarmouth, &c., in plenty. About Winchester, Petersfield, Selborne, Andover, and most other parts of the county on the chalk, abundantly. Rare on the green sand. A conspicuous ornament of our woods and hedges at all seasons, in early summer enlivening them with its dense, hemispherical

cymes of rather ill-scented flowers, and later with the glowing scarlet of its half-ripe, polished, coral-like berries, that at length assume a deep purple black, with a somewhat glaucous bloom, finely contrasting with the softly-blended shades of red, brown and yellow displayed in the broad, plaited or wrinkled leaves previous to their decay. A variety with the leaves dark green, shining and glabrous above, is not unfrequent here, and the shrub is very commonly cultivated in the Ryde gardens. The fruit is sweetish, and rather pleasantly tasted, fully as much so as that of *V. Lentago* or *V. prunifolium*, which I have seen sold in the markets at Philadelphia and Montreal, and it is eagerly sought after by our feathered songsters in autumn, that eat out the soft pulp, leaving the skins of the berries attached to the fruit-stalks. This shrub is called whip-crop in the Isle of Wight (sometimes applied to *Pyrus Aria*), from the occasional use made of its long, tough shoots by carters and ploughmen for whip handles, whilst in southern Russia, besides serving a precisely similar purpose, the bored stems were exported even to Germany, for the tubes of tobacco pipes (Pallas Fl. Ross. i. part 2, p. 31). The North American way-faring tree, or hobble-bush (*V. lantanoides*), is a perfectly distinct species, though strangely enough thought by the author of the 'Arboretum Britannicum' a variety of the European.

Viburnum Opulus. In low and moist (rarely in dry upland) copses, thickets and hedges, and by stream sides; extremely frequent over the whole county and island. Very common in damp woods around Ryde, as in Quarr Copse, at Apley, &c. Plentiful in copses about E. Cowes, Newport, Yarmouth and Calbourne. Very common in woods at Selborne, at Sheat and elsewhere about Petersfield, Bishopstoke, Fareham, Boldre, &c. Var. β . Lobes of the leaves very long and acuminate.* In a copse near Hardhill Farm, near Cowes, Isle of Wight. Var. γ . Radiant flowers of the cyme herbaceous, greenish, or variegated green and white. In Whitefield Wood, betwixt Ryde and Brading, 1842, a single tree. In Elm Copse, near Calbourne, several bushes, June, 1845. A no less conspicuous ornament of our damp, than the foregoing of our dry, woods and hedges, decorating them with its broad flat cymes, bordered with a coronet of

* Do not the lobed leaves in this species and a few more of the genus *Viburnum* point at an occult, pinnated arrangement, the gland-like appendages near the summit of the petioles being, in fact, rudimentary leaflets? The near relation of *Viburnum* to *Sambucus* favours this supposition, which, if correct, the lobes of the leaves exhibit the uppermost pair of leaflets with the terminal one united.

purest white, in May and June, and its large clusters of fruit, of bright translucent scarlet, in September and October, whilst the vivid purple of the fading leaves combines with the varied tints of the wayfaring tree, the maple and dogwood, to the gorgeous hues of the autumnal landscape. This shrub often rises with us in the wild state to 10 or 12 feet, and with cymes 4 inches in diameter; a variety with very small leaves is likewise frequent. The fruit, which is intensely acid and bitter, finally becomes disgusting from its odour, and hence the plant is sometimes called stink-tree in this island. The tall cranberry of the Americans (*V. Oxycoccus* and *V. edule*) is now considered identical with the European *V. Opulus*, of which it seems to me to be scarcely even a variety, my specimens gathered in Canada differing in no respects from Hampshire ones, and the berries I found to be equally bitter, sharp and unpalatable, yet are they eaten, as Dr. Asa Gray observes, as a (poor) substitute for cranberries in the northern parts of the United States. Gmelin (*Fl. Sibirica*, iii., p. 146) relates a strange and rather long story from Steller, of the property these berries are said to possess of depriving corn brandy of both taste and smell, and reducing it apparently to so much water, yet retaining its power of intoxicating rather increased than diminished by the addition. When planted in a dry garden, the interior flowers of the cyme quickly evince a tendency to become radiant and abortive like the outer, or to assume the conditions they present in the well-known snowball tree of our shrubberies.

†? *Lonicera Cuprifolium*. Woods and thickets; very rare. In two places in the middle of a wood at Appleshaw, apparently quite wild; Rev. G. F. Dawson in litt. I have twice carefully searched for this rare honeysuckle in Mr. Dawson's station, which is a steep wood at the north end of the village, and in part nearly facing the church, but failed in finding the spot, as did also Mr. Whale, of Andover. The wood, which is large and thick, has been partially cleared of brush, so that it is very possible the *Lonicera* may have been removed with the underwood, or have escaped observation in the part left standing, and which is not everywhere easily explored from its density. In the former case the plant will no doubt spring again from the root and attach itself to the new undergrowth, in the latter a persevering search will bring it again to light. I have seen specimens from the station in the herbarium of Miss O. Haddfield, of Ventnor, Isle of Wight, communicated by the discoverer. The locality is a good one, but geographical considerations are opposed to the idea of the species being truly indigenous to this country, though decidedly

a well naturalized plant in several parts of the kingdom. The wood in question abounds with *Colchicum autumnale*, and produces *Aquilegia vulgaris*, *Vicia sylvatica* and other good plants, whilst the picturesque village of Appleshaw, with its long lines of stately walnut trees, is well worthy of a visit from the lovers of rural beauty and retirement.

Lonicera Periclymenum. In woods, hedges, thickets, on rocks and old walls throughout the county and island most abundantly, filling the air along our green lanes and bye roads with the grateful perfume from its flowering coronals of white, crimson, or golden yellow. The variety with sinuate leaves (oak-leaved honeysuckle) is not very uncommon in our woods, and I think with the authors of the 'Flora Hertfordiensis,' is probably a mere accidental variation in the straight succulent shoots, either natural or produced by the bill of the woodman in clearing the brush, as I do not remember ever to have remarked such leaves on the older flowering shoots. The leaves of this plant are sometimes with us perfectly glabrous on both sides, and a little shining, but more commonly finely pubescent underneath.

N.B.—*L. Xylosteum* should be looked for in dry, hilly copses on the chalk in the east and north of the county. I have gathered it truly wild and most abundant in upland woods at Amberley, in Sussex, where it was first discovered by Mr. Borrer.* Though a shrub of a decidedly eastern and continental tendency, it has been found in several parts of England, and even in Forfarshire according to Mr. Gardiner. It ranges over Europe, especially the northern parts, to lat. 60°—63°, but is rare in the western and maritime countries of the continent.

Sherardia arvensis. Extremely common in waste and cultivated places, corn-fields, fallows, woods, &c. all over the county and Isle of Wight, on dry, light soils.

Asperula cynanchica. On dry, open, hilly pastures, heaths and banks; abundantly in the chalk districts, on the high downs and at the sea level. Very fine on banks at Ventnor, profusely about Caris-

* In one of these high, hill-side copses, which Mr. Borrer does not seem to have known of, I found many very stout stems of the fly honeysuckle, evidently of great age, the brushwood in some parts mainly consisting of this shrub. An old farmer who was watching my proceedings from a gate a great distance below, as I afterwards found, to induce me to buy or rent the land of him a bargain as an eligible building investment, told me he had long intended grubbing up the copse, but refrained from so doing at the instance of his son, who wished it preserved for the amusement of rabbit shooting.

brook Castle and most other parts of the island, and I believe equally common throughout the county. Wheely Down; Rev. E. M. Sleaden. Maindell chalk-pit, Down-lane, Portsdown; Mr. W. L. Notcutt. A charming little plant, of exquisite grace and delicacy when closely contemplated.

Asperula odorata. In woods, groves, and on shady hedge-banks in various parts of the Isle of Wight and county; abundantly. Common about Ryde, Cowes, &c. Woods at Selborne, abundantly. Wickham. Mitcheldever Woods; Rev. D. Cockelton of Bullington. Andover; Mr. Wm. Whale.

Galium cruciatum. In dry woods and thickets, borders of fields, on sunny banks and under walls, very frequent in the Isle of Wight, and I believe as much so in mainland Hants.

—— *palustre*. In pools, ditches and other wet places, abundantly; the var. β . *Witheringii* (*G. Witheringii*, *Sm.*) not unfrequent also.

—— *Mollugo*. In hedges, bushy places and borders of woods almost everywhere. Abundant all over the Isle of Wight, where our hedge-rows are conspicuously adorned with the copious milk-white flowers in the latter months of summer. Var. β . *ochroleuca*; flowers yellowish or cream-coloured. Field-hedge near Plumbley's (new) Hotel, at Freshwater Gate, in considerable plenty, though confined to one spot, growing with the ordinary white sort and strikingly contrasting with it, July 7, 1844. I found it with flowers more of a yellowish green betwixt Shanklin and Cook's Castle, July 23, 1845, and which my friend Mr. Wm. W. Saunders has remarked betwixt Ventnor and Bonchurch not uncommonly. In our hedge-rows this plant clambers over the shrubs to the height of many feet, and then is a great bushy branched plant, but in dry, open places and chalky pastures, it is much smaller, less ramified and decumbent, when it may be often mistaken for *G. erectum*, if indeed that species has any separate existence as undeniably distinct from *G. Mollugo*.

—— *verum*. In dry fields, pastures, by road-sides and in loose sand of the sea-shore; abundantly. Plentiful amongst the sandy hillocks on St. Helen's Spit, Isle of Wight, &c. The light airy panicles, with their myriads of tiny golden stars, show doubly beautiful by contrast, rising tall and taper amongst the countless snowy blossoms of *G. Mollugo* on the summit of some grassy bank.

—— *saxatile*. On dry, barren, sandy heaths, commons and banks; abundantly. Profusely on Royal Heath, Sandown, and on the earthen fences along the road over Bleak Down from Newport,

&c. Common, I believe, throughout the county. Titchfield Common; Mr. W. L. Notcutt.

Galium uliginosum. In moist, boggy or marshy places, thickets, &c. Plentiful in several localities in the Isle of Wight, but by no means a general species here. Bog at Cockleton, near W. Cowes. Marsh at Freshwater Gate. Willow thickets by Langbridge and Budbridge, and a few other spots. The plant does not turn black in drying like *G. palustre*. I have no mainland station to record for this species, but cannot suppose it to be wanting or even uncommon in Hants.

——— *tricornis.* In corn-fields and other cultivated land, and in dry waste places, common in various parts of the Isle of Wight, and most so in West Medina, where the chalk is more predominant than in East Medina, and the proportion of arable to pasture and woodland much more considerable. About Thorley and Wellow the corn-fields are often quite overrun with it. About Cowes not unfrequent, corn-fields above St. Lawrence and Sandown Bay, at Carisbrook, Bonchurch, &c. Very rare about Ryde (on the eocene or tertiary deposit), and not common on the green-sand. Andover, towards Weyhill, 1848. Liphook, Bot. Guide, and doubtless not uncommon in mainland Hants, though I have not received it from my county correspondents. Often, I dare say, passed by for *G. Aparine*, but easily recognized by the large tuberculate globose fruit, which, suspended from the triple downward-curved pedicels, pretty exactly imitates the three balls as they are seen hanging out over a pawnbroker's shop. Flowers occasionally 5-cleft and pentandrous, or trifid and triandrous; styles often two, distinct.

——— *Aparine.* About hedges and fences, in woods, thickets, corn-fields and waste ground, abundant everywhere. A very widely-diffused plant over the earth, I have found it apparently indigenous in woods at New Orleans, though thought to have been introduced to America (where it is very common) from the Old World. The herb, chopped small, is given to goslings in this island. *G. anglicum*, *G. Vaillantii*, and *G. erectum* may all be reasonably expected in this island and county, the last I more than once imagined I had found here, as did my friend Dr. T. Bell Salter, but I believe it was only a small erect form of *G. Mollugo*, which is not uncommon in dry, chalky pastures and bushy places. I do not, I confess, understand that plant, which appears to me, both in description, plate (in E. B.) and specimens, to approach much too near to *G. Mollugo* to be satisfactory. A specimen of *G. boreale* was shown to me last summer, at

Andover, by Mr. Wm. Whale, labelled Magdalen Hill, near Winton, 1838; but although the genuine plant, I cannot venture to include in a Hampshire list a species so foreign as this to the south-east of England, particularly as Mr. W. did not gather it himself at the station, and cannot now remember the exact history of the specimen. The hill itself, too, is as unlikely looking a place for *G. boreale* as can well be imagined; some mistake has unquestionably been committed.

Rubia peregrina. Climbing over bushes, rocks and stony banks, in woods, thickets and hedges in numberless places in the Isle of Wight, and usually very abundantly. In various places about Ryde, as in Quarr Copse and Church Lane Binstead, and most profusely at the Priory, where (as well as about Steephill and thence onward towards St. Lawrence) it forms a dense mat on the underwood all over the grounds, and from off which it may be pulled by handfuls. Plentiful about Yarmouth, Freshwater, Cowes, &c., &c. From the persistent nature of its leaves it is here called evergreen cliver (cleaver is the name for *Galium Aparine* in most parts of England), and the perennial stem often ascends trees to a considerable height.* This is usually described as square, but it is only the branches which are quadrangular, the stem itself is quite terete, woody, and covered with a fine ash-coloured epidermis, which, when old, peels off in paper-like flakes, and though not in general thicker than a quill, I have reason to believe lasts for several years; even the flowering shoots are more than annual, perhaps biennial or even perennial, but certainly less enduring than the main stem, which is truly suffruticose in this species, and unlike the square and very brittle branches, extremely tough and flexile. The leaves are exceedingly inconstant in number and form, varying from 4 to 6 in each whorl (commonly 4 or 5), mostly reduced to 2 or 3 beneath and amongst the flowering ends of the branches, and of all shapes, from lanceolate or elliptic-lanceolate to broadly elliptical, ovato-elliptical, ovate, obovate or even suborbicular, the smaller usually the broadest. Corolla truly rotate, without any tube, granulated above, the innate anthers of an oblong rectangular figure, plano convex and somewhat arcuate or decurved at each end. The small, black, juicy, berry-like fruit is often abortive, wholly or partially,

* I measured a stem from the Priory woods, near Ryde, which had ascended a tree to the extent of ten feet, hanging detached or at some distance from the trunk like a cord, and though the intermediate part appeared quite dead and withered, the summit had shot out into a bundle of green and vigorous leafy branches, high over head amongst the boughs of its supporter.

on the same plant, at other times matured in abundance. The slender bright red root abounds in colouring principle, and would probably, if cultivated, yield as good madder as those of *R. tinctorum*. I suspect the *R. lucida* of southern Europe is not distinct from ours, whose variable habit, Bertoloni remarks (*Flor. Ital. ii.*, p. 148), has given rise to several false species, which he has traced into one another. *R. peregrina* is given by Ledebour as a native of the south of Russia; may not his plant be different from ours, which is quite a species of southern and western Europe, confined to the Atlantic and Mediterranean climates of the continent, and wholly unknown to all the interior countries? It is hardly credible, therefore, that so tender a plant should be able to withstand the rigorous winters which distinguish the climate of Russia proper, even as low as the Black Sea provinces. I am at present unable to assign any station for *R. peregrina* on the mainland of Hants, where, if not wanting, it must be very uncommon, yet I cannot help thinking it must grow along the coast at least, though I have not myself remarked it or heard of it from others. The wild madder is assuredly one of our most beautiful native plants, and its light panicles of greenish yellow flowers are not devoid of elegance, relieved by the deep verdure of its thick, shining, persistent leaves, which, when young, have a fine reddish brown tinge, and contribute, by the exuberant profusion with which they clothe rocky bank and bushy brae in many parts of this island, to enliven the monotony of the winter landscape, as much as they add lustre to the gayer garniture of summer scenery.

‡ *Centranthus ruber*. Subspontaneous; on old walls and buildings; not uncommon. Plentiful on Yarmouth Castle and on the garden wall of Morton House, Brading. Carisbrook Castle walls. On the rocks behind the houses at Ventnor, &c., but in all cases evidently originating from gardens, and retaining the variety of colour imparted to the flowers by cultivation. Said to be abundant in old chalk-pits in Kent, and, as Smith thought, perfectly wild, and on the rocks at Dawlish it looks more like a native than in any place I have seen it in elsewhere. The French Floras, even of the south, give it as mostly naturalized, nor do the Italian stations seem less exceptionable than our own. Gerarde says it was not common in England in his time, but being a plant of western and maritime Europe it may possibly be aboriginal on calcareous rocks in the south of England, though as far as regards the Isle of Wight and Hampshire generally, a certainly introduced and semi-naturalized species.

Valeriana officinalis. In wet thickets, on the banks of ditches

and rivers; frequent in the Isle of Wight, and I believe throughout the county. Common along the course of the Medina above Newport, at Blackwater, &c. In several parts of Sandown Level, at Yarbridge, Alverstone, and several other places, often very abundantly. Winnal-water meadows. Bridge at Carns and side of Titchfield River; Mr. W. L. Notcutt. W. Meon, Warnford; Rev. E. M. Sladen. Itchen Stoke; Miss L. Legge. *V. sambucifolia* may possibly be found in the county, but of this I know nothing, and judging from the characters assigned it in the Manual, it seems to have little else than the larger number of leaflets to distinguish it from the common *V. officinalis*, a mark on which it would be unsafe to rely, as we have lately seen that in the elder, which this species is thought to resemble, the leaflets vary from three to five, and sometimes to as many as seven or nine, whilst in form they are no less inconstant.

Valeriana dioica. In low, wet meadows; very rare in the Isle of Wight. In deep, boggy ground, apparently composed of comminuted shells, at Easton Fresh-water Gate, pretty plentifully. By a small stream at the west end of Briddlesford Heath. In some wet meadows near Thorley; Rev. James Penfold!!! In Winnal-water meadows Winton, abundant. Warnford; Rev. E. M. Sladen.

Valerianella olitoria. In cultivated ground, corn-fields, and on hedge-banks; extremely common. Var. β . Flowers white; in a field near Shanklin.

————— *dentata*. In cultivated fields, chiefly amongst corn; very common. Abundant in corn-fields about Ryde, Sandown, Cowes, and most other parts of the Isle of Wight. Frequent, I believe, over the whole county, though I have omitted to note its occurrence in mainland Hants. Nore Hill; Dr. T. B. Salter. By Hill Copse, Fareham; Mr. W. L. Notcutt. Var. β . Fruit clothed with incurved, rigid hairs, cup of the calyx small (*Fedia mixta*, *Vahl*). In a corn-field with the next species, by a creek of the Medina, adjoining Medham brickfield, in great plenty, July 13th, 1839. In these specimens the hairs are but sparingly found, and not easily seen without a glass.

————— *Auricula*. In cultivated fields amongst corn, &c., plentiful in various parts of the Isle of Wight, but rather less frequent than the last, of which I more than suspect it to be a variety merely. About Ryde, Cowes, Freshwater, Yarmouth, Haven Street, &c., often very abundantly, and probably equally frequent on the mainland.

Obs.—Var. *carinata*, which abounds in Normandy and the Chan-

nel Islands, will probably be found in this, as it has already been in other counties of England; but its great resemblance to *V. olitoria*, from which it is scarcely distinguishable but by its fruit, renders its detection less easy. M. de St. Amans (*Flore d'Agen*, p. 14) makes them varieties, and says he has found the fruit of both on the same plant. Without pretending to decide the point, I incline to the belief that *V. carinata* holds the same relation to *V. olitoria* as *V. Auricula* does to *V. dentata*, and that the value of each as distinct species is, to say the least, very problematical. We have only to conceive the two anterior barren cells of *V. dentata* to become inflated, and consequently gibbous, and then I do not see in what it would differ from *V. Auricula*. The latter, though till lately overlooked or disregarded even as a variety, was early noticed by Morison, who described and figured it in his '*Historia Plantarum*,' vol. iii. p. 104, tab. 17, sect. 7, No. 37.

Dipsacus sylvestris. In moist hedges, wet woods, thickets, and on ditch-banks, extremely common over the whole county and Isle of Wight. In the wet woods about Ryde I have seen this species nearly seven feet high. The flowers expand in successive rings or zones (of a close or compressed spiral) on the large, conical heads, commencing about the middle of each cone, and ending at the base and apex, or by a centripetal progression of development.

———— *pilosus*. In wet hedges and lanes; an apparently uncommon species in mainland Hants, and not found in the Isle of Wight. Selborne as noticed by White, and where I find it plentiful along moist hedge-banks and borders of wet thickets in the valley towards Priory. In watery lanes between Hambledon and Wickham; Rev. Messrs. Garnier and Poulter in Hamp. Repos. * By the road-

* I must here correct a mistake which has been continued through all the preceding numbers of these Notes, in attributing, as I was led to do through wrong information, the list of county plants in the '*Hampshire Repository*' to Dr. Pulteney, whereas the real authors of that list were the present Dean of Winchester (Dr. Garnier) and the Rev. Mr. Poulter, late of Warnford, near West Meon, the similarity of whose name to the Dorsetshire botanist and physician's most likely occasioned the latter to be reputed the compiler of the Catalogue by the author of the '*Botanist's Guide*.' This information I had from the Dean himself, a short time back, and who kindly corrected another mistake, for which I am wholly responsible. Under the head of *Corydalis solida*, at p. 336, I mentioned my belief that the Dean (its discoverer at Wickham) had formerly told me the station was the site of an old garden, but such was not the case. The plant grew in considerable abundance in the heart of a wood now destroyed, to all appearance perfectly wild. Such being the fact, and this species native to every country of central and northern Europe, France, Germany,

side going from Bishopstoke station towards Swatheling (one quarter of the distance from Bishopstoke); Dr. A. D. White. Hurstborne; Rev. G. F. Dawson in Miss Hadfield's herbarium! North Fareham; Mrs. Robinson in Mr. W. L. Notcutt's list of Fareham plants in 'Phytologist' ii. p. 207. •

This plant inclines strongly to the eastern or "Germanic type" of distribution, is very rare in the west of England, and unknown in Scotland and Ireland, doubtless from their ultra insular or oceanic climate being unsuited to its nature. From its close proximity to the mainland, the influence of the maritime or island climate is greatly modified in the Isle of Wight, and assimilated to that of the opposite mainland coast; still the insularity of our position is shown by the absence from the Vectian flora of certain plants common to the interior of the county, as *Phyteuma orbiculare*, *Convallaria majalis* and *multiflora*, *Dipsacus pilosus*, *Daphne Mezereon*, *Paris quadrifolia*, *Campanula patula*, *Herminium Monorchis*, &c., and the comparative rarity of others, as *Verbascum nigrum*, *Rhamnus catharticus*, *Cephalanthera grandiflora*, *Bryonia dioica*, and some more; all species, be it observed, either very rare or quite wanting on the extreme western side of Britain, in Wales and Ireland. That the above is the true cause of their absence or unfrequency in this island will, I think, appear sufficiently obvious from my remarks on the distribution of the bryony at p. 369, and not for lack of congenial soils and situations perfectly adapted to all and each of the species just enumerated, on its infinitely varied surface, which is a complete epitome of the entire county. But to compensate for the want or scarcity of these interior or continental species, the Isle of Wight produces many plants wholly or mainly restricted to itself and the opposite line of coast, as *Rubia peregrina*, *Iris fœtidissima*, *Briza minor*, *Scirpus Savii*, *Cyperus longus*, *Senebiera didyma*, *Euphorbia portlandica*, *Linaria repens*, and some others, not to mention the host of purely maritime plants which could not of course exist but on the sea-shore.

Knautia arvensis. In meadows, pastures, cornfields and by waysides; common everywhere in the county and Isle of Wight. With

Belgium, Holland, Denmark and Sweden, I can see no objection to its admission into the Hampshire flora, and suspect that it has been rather too hastily placed on the alien list, and that whilst many of its habitats may be dubious, or even inadmissible, others will be found on renewed inquiry and examination to be truly natural ones. The figure in 'English Botany' was drawn from a Hampshire specimen sent by its discoverer from the Wickham station to Sir James Smith.

white flowers in a clover-field near Wellow, 1840. Var. β . Smooth, all the leaves undivided, Isle of Wight, E. K., Loudon's Mag. of Nat. Hist. i. p. 83. Var. γ . All the florets of the centre equal to those of the circumference. Banks at Ventnor and corn-fields near St. Lawrence; Mr. Wm. W. Saunders, 1841 !!! Called gipsy or Egyptian rose in this island, a name applied also, I believe, to the common garden scabious (*Scabiosa atropurpurea*).

Scabiosa succisa. In rather moist woods, meadows, and heathy pastures, most abundantly. These are often empurpled with its azure flowerets, unwelcome in their beauty as the earliest but surest token, that whilst nature wears yet an aspect green and fair, the noon-tide prime of the year has departed, and that ere long the "sere and yellow leaf" will give true but timely warning of the "dim declining days" that must succeed its fall. Faithful to the advent of this silent monitor, the great green locust (*Acrida viridissima*) begins to herald the approach of autumn with his shrill note of preparation, feebly at first, and solitary, till later, every hedge is resonant the live long night with the ceaseless, responsive chirp of the invisible choristers.

———— *columbaria*. On dry, and especially chalky banks and pastures; scarcely a common species in the Isle of Wight, though abundant enough in many places both here and on the mainland. About Carisbrook, frequent on the chalk about Appuldercombe, at Ventnor, Bonchurch, &c. Sloping banks above the Culver Cliff, Sandown Bay. Everywhere on dry slopes about Swainston, Rowledge, Westover, &c., often with lilac flowers. Maindell chalk-pit, near Fareham; Mr. W. L. Notcutt. Wheely Down, near West Meon; Rev. E. M. Sladen. Andover; Mr. Wm. Whale.

Eupatorium cannabinum. By rivers and ditches, in moist woods, hedges and other damp or marshy situations, extremely common everywhere. Remarkable as the only representative of the genus in Europe out of so many species inhabiting America, to few or none of which is it inferior in size or appearance. Sometimes (from the colour of its flowers?) called raspberries and cream in this island.

Petasites vulgaris. Probably a frequent, if not a common plant on the mainland of Hampshire, although not found in the Isle of Wight. Plentiful at Bishopstoke, by the river side near the church. Chrystal Abbey, about a mile from St. Mary Bourne, on the Hurstbourne road, in great profusion; Miss Hadfield! Abundant about Winchester; Dr. A. D. White. Andover; Mr. Wm. Whale.

N. B. — *Nardosmia fragrans* (*Tussilago fragrans*) is naturalized in various parts of the county and island by streams and on moist

banks; but species that, like this, maintain their ground solely by their creeping roots and not by seed, can hardly, I think, be admitted with propriety even into the ranks of denizens.

Tussilago Farfara. In moist fields, pastures, waste and arable ground, extremely troublesome and abundant on our stiff clay soils, on the north side of the Isle of Wight, and covering the wet banks of slipped clay along the entire line of coast where those formations prevail. Common in all parts of the mainland.

Aster Tripolium. On muddy sea-shores and in salt-marshes; not uncommon in the Isle of Wight. Ditches on Ryde Dover and about Springfield. Salt-marshes at Newtown, Yarmouth, and muddy shores at Brading, Wootton Bridge and elsewhere, frequent, and occasionally with the rays partially or entirely wanting. Common on most parts of the Hampshire coast at Havant, Emsworth, Fareham, in Hayling Island, &c., &c.

Erigeron acris. On dry, barren fields, banks and pastures; not at all unfrequent in the Isle of Wight, though scarcely to be called a common plant. In various places near Ryde, Newport, Cowes, Yarmouth, &c., very widely dispersed, and occasionally in profuse abundance. I have seen a dry, hilly pasture, which in summer is resonant with the shrill chirping of the field-cricket (*Acheta campestris*) between Apse and Ninham farms, near Shanklin, quite covered with it. Probably not uncommon over the county. Maindell chalk-pit, the Salterns, near Fareham; Mr. W. L. Notcutt.

Bellis perennis. Enamels our meadows, pastures and banks in lavish profusion.

Solidago Virgaurea. Plentiful in woods, groves, on hedge-banks, heaths and commons in most parts of the Isle of Wight, and I believe of the county generally. In Quarr Copse, Binstead, &c. Like *Eupatorium cannabinum*, the sole representative of its genus in Britain, if not in Europe, and as variable in its character as any of the species, which, with those of *Aster*, its close ally, are the opprobrium of American botanists, just as the brambles, willows and roses are stumbling-blocks to our botanists at home.

Inula Helenium. Truly wild in moist meadows, pastures, woods, about the borders of fields, by stream-sides, and amongst bushes, in very many parts of the Isle of Wight. Rare about Ryde, at Quarr and Binstead, and by a stream in a wood at Haven Street. Rather plentiful at the Bonchurch extremity of the Luccombe landslip (East end); Mr. Wm. W. Saunders!!! More common in West than in East Medina. Plentiful in a field by the Medina a little above West

Cowes, as noticed by my late lamented friend Samuel Hailstone, Esq. By the brook at the head of the marsh between Gurnet Bay and Hardhill farm. Frequent in pastures and thickets in various parts of the parishes of Thorley and Freshwater. Weston, Calbourne, Wellow, Ningwood and elsewhere. I have no data at present for showing its distribution over mainland Hants, but from its frequency in the Isle of Wight suppose it may not be uncommon in the county. By the road-side not far from Preston Candover, between Old Alresford and Basingstoke; Mr. Wm. Pamplin in litt. Called wild sunflower in the Isle of Wight.

Inula Conyza. In dry hedges, thickets and on grassy slopes, mostly, but not exclusively, in the chalk districts of the Isle of Wight, where it abounds. In the lane leading from Quarr Abbey to the Newport road in plenty, otherwise rare about Ryde. Plentiful at Bonchurch, Ventnor, St. Lawrence, and along the Undercliff generally. Frequent about Arreton, Brading, Carisbrook, at Yaresland, Northcourt, Adgeton Rowledge, &c. Frequent, I believe, in the county on the chalk. Maindell chalk-pit, Fareham, and Porchester road; Mr. W. L. Notcutt. Warnford; Rev. E. M. Sladen. Week-hill-hanger, Selborne; Dr. T. Bell Salter. Sometimes grows to five feet in height: the odour is very aromatic and agreeable.

Inula crithmoides. In muddy salt-marshes; very local in the Isle of Wight; more general along the shores of mainland Hants. In a creek of the Medina, about half a mile above East Cowes, but very sparingly; the late Mr. S. Hailstone!!! Fringes the margins of the brine-pans in the Newtown marshes in great abundance. Marsh near Hurst Castle; Ray, Bot. Guide. Wicor Hard; Mr. W. L. Notcutt! In several parts of Hayling Island, and shore betwixt Emsworth and Langston. Frequent, I believe, all along the coast of Hants where mud-flats occur. The golden samphire has an aromatic, not ungrateful smell, and a warm, pungent, saline taste, approaching in both respects to the true samphire (*Crithmum maritimum*), for which the fleshy leaves would perhaps be a good and much more accessible substitute.

Pulicaria vulgaris. In moist spots and pits where water has stood during winter, on village greens, and about farm-houses, in places trodden by cattle, but not commonly in the Isle of Wight. About Trouble-fields farm, Ryde, in some quantity. Abundant on St. Helen's Green. About Sandown, where it was plentiful some years ago in a deep pit or depression abounding in chamomile (*Anthemis nobilis*), just where the Ryde and Brading road branches off

along the bay to Shanklin and Yaverland. Near Lake, Apse, Walpen and Hardingshoot farms. I have gathered this species some years ago at Marchwood, near Southampton, but have never received specimens or seen it in any of the local lists of the county plants with which I have been favoured by correspondents, except from Mr. Whale, of Andover, with whom I have seen examples, collected near that town. Its plain, inconspicuous aspect, rather perhaps than any great degree of rarity, causes it to be overlooked or disregarded by collectors. Inner pappus much shorter than the florets; achenes terete. A good example of the eastern or "Germanic" type, which, in the Hants Flora, predominates over the "Atlantic" or western type of vegetation, the latter beginning to develop itself sensibly beyond the meridian of Newport and Winchester, and especially visible in the south-west portion of the county, between the Southampton estuary and the Dorsetshire boundary (New Forest district), becoming very decidedly marked in the last-named county.

Pulicaria dysenterica. In moist places by road-sides, in lanes, woods and on ditch-banks, abundant almost everywhere. The green margins of our lanes and bridle roads are commonly lined with this plant, which, in the autumnal months, displays its handsome, brilliant yellow heads of flowers, in a broad belt on either side of the traveller's path. Inner pappus as long as the florets; achenes strongly ribbed and angular.

Bidens tripartita. In ditches, ponds, and other watery places; much less frequent in the Isle of Wight than the next, and indeed may be called rare on this side of the Solent. In various parts of Sandown Level. In a ditch by Merry Garden. Margin of the pond at Hardingshoot farm in considerable plenty.

Bidens cernua. In similar places with the last, but far more commonly. In the foregoing stations for *B. tripartita*. Frequent along the Medina in several parts of its course, as about Cridmore, Rookley, &c. Near Gatcombe, Newchurch, Budbridge, Alverstton and various other places. Common on mainland Hants. Short Heath, near Selborne, &c., &c. Var. β . Much smaller, stem slender, simple. *B. minima*, *L.*, *F. Dan.* ii. t. 312. *Dillen.* in *Ray's Syn.* i. p. 188, t. 7, right-hand fig. In a bog on the wet moors a little N.E. of Godshell, and nearly opposite Moor farm, Sept., 1843. In my specimens the heads of flowers are both erect and slightly nodding. The variety of these two species with radiant marginal florets has not occurred to my knowledge in the county.

Anthemis arvensis. In sandy, gravelly, or chalky fields, amongst

grass, clover, turnips, &c. (I have never seen it here in corn), more rarely on dry hedge-banks and waste ground; by no means uncommon in the Isle of Wight, but perhaps in most cases introduced with grass seeds from the mainland. On hedge-banks near Arreton. Plentiful amongst vetches in a field at the south end of Newchurch, June 1st, 1845, and in a grass field at Vinnicombe Barn, near that village, where the proprietor of the land complained of it to me as a most troublesome weed. In several places about Sandown, Shanklin, Newchurch, Godshell, Swainston, Bonchurch, &c., most frequently amongst clover, and hence scarcely persistent in its stations for any time. Near Andover, and seen in plenty by the side of the Andover road, going up the hill from the railway (Andover road) station. Winchester. The fine, large, white flowers are sweet-scented, with an odour, when bruised, like chamomile, but weaker, of which the herbage is nearly destitute, and it is the earliest species of its tribe to come into blossom, which it does here in May, if not sooner. I remarked in June, 1845, that in a field of vetches at Newchurch, upon which sheep were penned to eat them off, the *Anthemis arvensis* was cropped clean down to the roots by those animals, and though excessively abundant, not a plant was spared by them. This species ought perhaps rather to be encouraged than otherwise in clover and grass fields, as its sweet, aromatic qualities are probably salutary to stock of most kinds.

Anthemis Cotula. In waste and cultivated land, especially amongst corn, by way-sides, on dunghills, &c.; far too abundant over the entire island, if not equally prevalent throughout the county, as I believe it to be. Plentiful in Hayling Island, &c. Mr. Notcutt could not find it about Fareham (*Phytol.* ii. p. 491). Var. β . Leaves fleshy, dotted, stem procumbent. In loose sand on the beach at Norton Freshwater. In this variety, which I at first took for *Pyrethrum maritimum*, besides the above characters, the pales of the receptacle appeared to be broader or less setaceous than in the usual inland state of the species. This plant is a grievous nuisance to the diligent and thrifty, as it is obnoxious to the negligent or slothful farmer, speedily overrunning the land when not kept clean, and often nearly obliterating the corn crops in this island.* Here it is but too

* About Cowes, and in many other parts of the island, I have seen the standing wheat so full of morgan as nearly to hide the ground from sight. Amongst the men of the island "whose talk is of oxen," but few comparatively of the smaller occupiers of the soil are actuated with the zeal of Triptolemus Yellowley for the advancement of agricultural science, and the contention between Ceres and Flora for the possession

well and familiarly known as Morgan or Morgin (pronounced by the customary Vectian change of the *o* into *a*, Margin), in Sussex Mavin, a word, of whose etymology and proper orthography, if it have any written existence, I am ignorant. A unanimous accusation lies against this pernicious weed of blistering the feet, hands and open bosoms of the harvest men employed in binding up the sheaves and piling the shocks of wheat. That the imputation is well founded, the concurrent testimony of every labourer in the harvest-field leaves no room to doubt. The general opinion, gleaned from numerous and minute inquiries, I find to be, that the irritating effects of the plant are caused by the seeds when ripe, and are mostly manifested in the lower extremities, from the close adhesion of the achenes to the part by their rough surface, aided by the friction of the shoe, inducing, first abrasion, afterwards active inflammation, and even ulceration. I have been repeatedly assured by the country people that they have

of the land which of right ought wholly to belong to the grain-giving goddess, would as much astonish and grieve the heart of a farmer from the Lothians, as it might charm a botanist from that rich and thrifeful corner of North Britain, were they to behold the fields that should be white to harvest with the unmingled fruits of skill and industry, overrun by a particoloured array of usurping weeds which ignorance, sloth, or want of capital permit to spring up unchecked. The subjoined spicilegium botanicum is merely a sample of what may be gleaned without labour from the too teeming lap of our Vectic Cybele in the way of agricultural nuisances. **Anthemis Cotula*, **Convolvulus arvensis*, *Adonis autumnalis*, **Ranunculus arvensis*, **Lychnis Githago*, *Papaver Rhœas*, **dubium*, *Argemone* and *hybridum*, **Alopecurus agrestis*, *Gastridium lendigerum*, *Briza minor*, *Euphorbia exigua*, **Peplus*, **helioscopia* and *platyphylla*, *Torilis infesta* and *nodosa*, *Pastinaca sativa*, **Scandix Pecten*, **Galium tricornis*, **Melampyrum arvense*, *Silene anglica* and *inflata*, *Vicia hirsuta*, **tetrasperma* and **gracilis*, *Bupleurum rotundifolium*, **Lithospermum arvense*, *Galeopsis Ladanum*, *Valerianella dentata* and *Auricula*, *Linaria minor*, **Elatine* and **spuria*, *Chrysanthemum segetum* and **Leucanthemum*, **Orobanche minor*, *Specularia hybrida*, *Myosurus minimus*, with a host of others still commoner, homelier, or at best more pretty than profitable. Those with the asterisk are the most obnoxious to the farmer from their bulk or abundance, the remainder, if less injurious, are sufficiently plentiful to aid in exhausting the land, and appropriating that nourishment which ought to go to the nascent crop, and therefore are never seen in any quantity where good husbandry prevails and the ground is kept clean and in fair condition. To this censure on the general state of agriculture in the island, many honourable exceptions must be made amongst the class of practical farmers, upon whose land scarcely a weed is to be seen, whilst several of the great owners of estates, in devoting their time, energies and capital to agricultural improvement, are silently effecting a change in the deep-rooted prejudices and slovenly habits of the little farmers of the old school, that are still a numerous race amongst the more enlightened of their brethren.

known men incapacitated for work, and laid up for days together in harvest time, through the injurious operation of this noxious weed, not one whom I have talked with on the subject but spoke feelingly of the annoyance, often from his own painful experience. To myself the odour of the bruised flower-heads is not unpleasant, nor, although when chewed these last have a biting acrimony of brief duration, am I sensible of any vesicating property on protracted handling of the fresh plant or its seed, whilst others have experienced the usual bad effects in a short time. I apprehend that long continued contact with a moist and heated surface is required to produce such a result with the generality of persons. A common and introduced weed in most parts of North America to which colonization has extended, where, however, it is by no means so troublesome and hurtful an intruder as with us. I have picked it on the Mississippi as far south as Natchez and New Orleans.

Anthemis nobilis. On heaths, commons, and dry pastures, in very many parts of the Isle of Wight, and often in great plenty. At Springfield, near Ryde, and on St. Helen's Green. In a deep hollow by the road-side near the north end of Sandown village, very fine and plentiful. On Lake and Blackpan Commons abundantly. Very luxuriant on sandy banks at the foot of Bleak Down, and on earthen fences near the pond by the road to Chale and Niton. Abundant on the open, heathy parts of Bordwood. On Rookley Moors, and in pastures by the Wilderness in plenty. Very exuberant on Kennerley Heath, between Rookley and Bohemia. On Colwell, Apse and Royal Heaths, &c. Quite a frequent species in most quarters of the island, and perhaps not less so in the county generally. Near Lynton; Dr. Maton in Bot. Guide. Fareham Common, Peel Common in profusion; Mr. W. L. Notcutt. Droxford Forest; Rev. E. M. Sladen. On Southampton Common, if I mistake not, but the chamomile is so generally dispersed over the Channel district, that I have neglected taking notes of its special localities. On our short, open pastures the plant is quite depressed, and might escape observation, did not the heedless passer-by force its fragrance from the sod at every step, but on heaths and banks it is very luxuriant, growing in large, decumbent tufts, and even at times quite erect. I found it July 31st, 1844, sparingly on the moors near Rookley Wilderness as very small plants, each bearing a solitary, globose head of perfectly full or double flowers, as we see it in gardens, in which the aroma is weaker than in the single and wild state of this valuable and popular tonic.

Achillæa Ptarmica. In woods, meadows, pastures, on heaths and by road-sides; a decidedly rare plant in the Isle of Wight. In and about Parkhurst Forest, by the road-side from Newport to Yarmouth, &c., very plentifully. Between Yarmouth and Ningwood, nearly opposite Cranmore farm. Road-side between Wootton and Newport, a little beyond the bridge across the road, but not plentiful. Alvington Manor land and Smallgains Heath; Mr. G. Kirkpatrick !! About the Depot Hospital (Parkhurst Barracks); Mr. W. D. Snooke, and in a few other places. Probably less unfrequent in mainland Hants. In plenty by the side of the London and Portsmouth road, between the 8th and 10th milestones, on this side of Petersfield, August, 1848. Millis's Bottom and Titchfield River; Mr. W. L. Notcutt. Serjeant's Meadow, Warnford, and Droxford Forest; Rev. E. M. Sladen. The bruised flower-heads have a pungent, aromatic scent, though the rest of the herb is nearly inodorous. The ray is deflexed at night, or when the plant is gathered, as in *Anthemis*.

Achillæa Millefolium. In meadows, pastures, on hedge-banks, by road-sides and borders of fields, everywhere very common. Var. β . Heads of flowers rose-colour, or deep red; occasionally. Shore near E. Cowes Castle. N. B.—*Diotis maritima* (*Santolina maritima*) is stated by Mr. W. D. Snooke* to grow on the shore at Sconce Tower, a little west of Yarmouth. There is certainly no trace of it there now, and from the unlikelihood of the station (on wet, slipped clay) to produce a plant of the loose, sandy, or pebbly beach, I may safely assume an error on the part of the recorder, unless the constituents of the beach at that time (1823) were very different from what they are at this, when the sea is making daily inroads on the soft banks, and reducing them to a magma of slime and mud along the line of high water.

Chrysanthemum Leucanthemum. An abundant and often very troublesome weed in dry fields and pastures, which are sometimes rendered quite white with it in the earlier part of summer. Called Bozzum in this island. Naturalized from Europe to an equally

* Author of a little anonymous work of 35 pages, entitled 'Flora Vectiana,' Lond. 1823, sm. 8vo., being a Catalogue of about 300 of the (mostly) less common plants of the Isle of Wight, arranged according to the Linnæan system, the stations partly original and partly selected from Withering's Flora and Turner and Dillwyn's 'Botanist's Guide.' To this list, originally drawn up for Sheridan's 'Guide to the Isle of Wight,' I am indebted, so far as it goes, for the compiler's own observed localities, which, with a few exceptions, I have verified, and when of sufficient interest have quoted under the author's name in these Notes.

injurious extent in the United States, where I have traced it from Boston as far south as Savannah (lat. 32°).

Chrysanthemum segetum. In cultivated fields, amongst corn, turnips and other crops, not uncommon, and sometimes in great profusion in the Isle of Wight, but chiefly confined to the sandy districts, and hence more frequent in West than in East Medina. About Sandown, Shanklin, Godshill, Chale, Rookley, Niton and many other places. Probably not rare in the county, although I find no notes made of its occurrence excepting at Short Heath, near Selborne, where it is plentiful in the loose sandy soil. Sometimes called here Yellow Bozzum, more commonly by its general name of Corn Marigold. A showy nuisance, more particularly infesting barley and turnips with us than other crops. Winter wheat at least (and this is the only kind grown here) seems in general free from its contamination.

†? *Pyrethrum Parthenium*. In waste or rubbishy places, on banks, wall tops, along hedges and road-sides, chiefly in the vicinity of habitations; not uncommon in the county and island, but scarcely I think truly indigenous. About Ryde, Cowes, &c. Plentiful on sandy banks at Oakhanger, near Selborne, about Petersfield, &c., frequent. Called Whitewort in this island, and an inmate of almost every cottager's garden.

———— *inodorum*. In fields, pastures, waste places, by waysides, &c., plentiful everywhere; a rather troublesome weed in tillage lands that are somewhat moist in the latter part of summer, amongst turnips, potatoes and other root crops. Var. *β. maritimum* (*P. maritimum*, *Sm.*). Common on banks and rocks along the shores of the Isle of Wight. At Sandown, Luccombe, Ventnor. Shore at Egypt, West Cowes, &c., in abundance. Not distinguishable by any mark that I can perceive from the last, except in such trifling deviations of structure as may reasonably be attributed to the influence of the sea air.

Matricaria Chamomilla. In waste places, corn-fields and by waysides; apparently a local, if not a rare plant in Hants, and which, though common along the coast immediately opposite, I have never succeeded in finding in the Isle of Wight. In several parts of Hayling Island, at South Hayling, &c., but not abundantly. Portsea Island. Pretty plentiful along the road from Cosham to Havant, about Drayton and onward to Farlington, where it is very common around the water-works and in the lane leading to them, also on the line of the Southern Counties Railway from Havant to the Fareham Junction. At Wymmering, along the road-side near the turnpike, and at Por-

chester. Border of a field at Norton, near Selborne, September, 1848. Southampton, in a corn-field; Mr. Borrer!! Wicor Hard, near Fareham; Mr. W. L. Notcutt!!! Droxford Forest; Rev. E. M. Sladen. Probably often overlooked from its strong general resemblance to *Anthemis Cotula* and *Pyrethrum inodorum*, but the mostly smaller flowers than those of either of these species, with the pleasant smell of apple or quince, which is very characteristic of the *Matricaria*, and from whence it got its specific name, will serve to distinguish it, especially from the nearly scentless *Pyrethrum*. The very conical disk is a character which attracts attention readily to the *Matricaria*, but in an early stage of inflorescence this is not always obvious, or at least not more so than in *Anthemis Cotula*, the disk in which is sometimes considerably prominent, though never perhaps so acutely conical as in the other. The leaves of the *Matricaria* are in general more finely divided or with the segments capillary, but these are liable to vary much in breadth in all the three species; so that the peculiar sweet smell of the heads of flowers, and the absence of pales on the receptacle, are the only sure marks by which the wild chamomile can, under all circumstances, be distinguished from its two allies. The total absence of this plant in the Isle of Wight, whilst so frequent in those of Portsea and Hayling and along the eastern coast of mainland Hants, is one of those curious problems in the geographical distribution of vegetables, which baffle explanation in our present utter ignorance of the laws by which that distribution is governed.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
January, 1842.

[To be continued].

Note on the flowering time of Mentha sylvestris.

By W. A. BROMFIELD, M.D., F.L.S.

YOUR correspondent, Mr. Lawson, wishing to be informed of the flowering time of *Mentha sylvestris*, and to know if the plant remains barren for a season, I am happy to answer his inquiry as far as I am able, from personal observation of the species at Selborne, in September last. At that sweet secluded spot, amongst the loveliest of England's lovely villages, and hallowed above them all in the hearts of British naturalists, such as read nature, not in books and closets, but in her own fair pages, the fresh and fragrant fields, *Mentha sylvestris*

grows in very great abundance in a damp meadow below the church, on the north side, and in a wet thicket to the eastward, at the opening of the valley leading to the Priory, in which third and last station it occurs in plenty in marshy soil adjoining the stream. When I saw it on or about the 16th of September, the greater portion of the plants in the second and last localities had flowered freely, but scarcely any specimens were left in that state, the flowers being for the most part quite over, so that I did not think it worth while collecting examples for the herbarium. In the first station below the church, but a comparatively small part of the entire number of plants appeared to have flowered that year, the few that had done so being likewise out or all but out of flower, and of these the leaves were in all three habitats rusty and eroded as if about to perish, their functions being no longer required, whilst those of the more numerous barren stems were uniformly fresh, entire and vigorous, and evidently destined to survive the winter, green as then. This species being perennial, the young plants, whether seedlings, or offsets from the creeping rhizoma of old ones, would of course not flower the first season, but whether these numerous barren stems were not of an age to flower, or were fated to remain unfruitful from other causes, I am not prepared to say. The great preponderance of barren over flowering specimens in the meadow beneath the church, inclines me to suppose that many of the plants never flower at all; but that the whole of the apparently barren stems should remain permanently in that condition, seems to me improbable. I apprehend that *Mentha sylvestris*, like many other plants of its order, has a great tendency to exhaust itself in root, and that whilst in some of its stations it may be induced to flower freely, in others, circumstances rather favour its propagation by the creeping rhizoma. *M. sylvestris* is given as a native of the Isle of Wight in the old 'Botanist's Guide,' on the authority of Mr. S. Woods, but I have never met with it here myself during nearly twelve years botanical acquaintance with all parts of the island, nor is it by any means a common species in England. *M. rotundifolia*, on the contrary, abounds in some of the districts of this island, and exhibits the same variable and capricious tendencies to barrenness and fertility as *M. sylvestris*, to which it is so intimately allied as almost to induce a suspicion, when the polymorphous nature of the genus is considered, that they may be states of one and the same species. I should say, for the same reason as that advanced in a late number of this journal, that the non-production of flowers and seed does not militate very conclusively against the claim of *M. sylvestris* to be held native to

Forfarshire; the circumstance of its being confined to the road-side, and not found on the undisturbed virgin soil around, would tend more to shake my confidence as to its indigenous origin than the mere fact of its sterility.

W. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,

January 2, 1849.

A few days in Canlochen Glen, &c. By JAMES BACKHOUSE, Junr., Esq.

8th Month, 1848. — Leaving our conveyance near the head of the pass between Braemar and the Spital of Glen Shee, my father and I followed the course of a streamlet that gurgled down from the hills amongst loose fragments of serpentine rock, interspersed here and there with glittering atoms of mica.

The rugged mountains that cluster round the head of the pass, were alternately enlivened and cast into deep shadow by incessant fluctuations of cloud and sunshine, and large patches of snow still remained on the southern slopes of Cairngorum and Ben-na-mac-dhui, which overhung the distant valley of the Dee.

Knowing that we were on the border of the richest botanical district in Britain, many parts of which had never been explored, we felt sure that rarities new to *us* at least, in their native localities, would quickly greet us, and the yellow cushions of *Saxifraga aizoides*, with *Alchemilla alpina* and many other old acquaintances, foretold treasures beyond, in store for the diligent and careful searcher.

Patches of *Sibbaldia procumbens*, and solitary plants of *Epilobium alpinum*, soon studded the margin of the streamlet, and a little higher *Veronica alpina*, *Carex rupestris*, and *Juncus trifidus* mingled with them. A few steps more gave *Juncus biglumis*, *Luzula arcuata*, *Gnaphalium supinum*, *Epilobium alsinifolium*, *Carex capillaris*, *C. rigida*, *Spergula saginoides*, *Juncus triglumis*, and *Luzula spicata*. Soon we reached some low rocks, the crevices of which were filled with *Polystichum Lonchitis*, in every stage of growth. Bogs on the table land beneath the Glass-Mhiel mountain produced *Carex rariflora* in abundance, with *Juncus biglumis* and the newly described *Carex Personii* sparingly.

On the summit of the Glass Mhiel, at an elevation of nearly 4000 feet, *Salix herbacea*, *Luzula spicata* and *Carex rigida* formed the entire herbage.

From the north-eastern side we descended into the alpine glen of Canlochen, which runs into the head of Glen Isla, one of the highest valleys of the Clova district.

Canlochen Glen is hemmed in on each side by dark precipices, while larch forests clothe its lower slopes, affording shelter for hundreds of red deer that roam at large over the vale and surrounding heights. The bogs and streamlets above the glen produced *Phleum commutatum*, *Alopecurus alpinus*, *Carex aquatilis*, and in one place (far above where snow usually lies unmelted from year to year) a species of *Eriophorum*, apparently different from *E. vaginatum*, having *short*, thick, and highly polished stems, round below and bluntly triangular above, with very large spherical or almost flattened heads: it differs from the *E. Scheuchzeri* of continental authors in having a differently formed nut, and leaves rough towards the point, but is probably the plant found by Don on Ben Lawers, which he called *capitatum*.

We returned to the Spital of Glen Shee over a high precipitous mountain, covered with acres of tumbled quartzose rocks, which forms the southern abutment of the Glass Mhiel.

The next morning saw us toiling once more up the steep western ridge of this mountain, buried in clouds and enduring all the pleasures of a highland shower. From the top we steered by compass into the head of Canlochen Glen, and commenced a careful search of the great precipice at the south-western head.

In many places the rocks were covered with *Dryas octopetala*, *Vaccinium uliginosum*, *Salix reticulata*, and *Arctostaphylos uva-ursi*, accompanied by a profusion of *Saxifraga oppositifolia*, which trailed upon the ledges in all directions, sometimes intermixed with large tufts of *Silene acaulis*. It was a delightful place for a botanist; and as we crept cautiously along the ledges under the towering cliffs, fresh rarities delighted our eyes at every few yards. *Potentilla alpestris*, *Saxifraga nivalis*, *Cerastium alpinum*, *Hieracium diaphanum*, *H. Halleri* (in curious and varying forms), with the distinct *H. nigrescens* and *H. alpinum*, conspicuously adorned the sombre rock, contrasting their blossoms with the purple *Erigeron alpinus* and *Saussurea alpina*. Here and there fine tufts of *Carex atrata* waved in the wind, and *Poa alpina*, *montana*, and *cæsia* grew under the shelter of wet rocks. The exquisite little *Veronica saxatilis* occasionally showed its brilliant flowers, and *Gentiana nivalis*, sometimes almost microscopic, and sometimes 6 or 7 inches high, was sufficiently abundant to make us believe that we were the first botanical visitors at its lonely

dwelling-place in 1848. *Veronica alpina* and a variety of *V. officinalis* margined some of the rills, and enormous tufts of *Polystichum Lonchitis* with fronds 18 inches long added to the interesting assemblage. In climbing from ledge to ledge on the face of the crag, near a basaltic gorge we found a *Gnaphalium* of very unusual appearance, differing from *G. sylvaticum* (to the mountain form of which it approaches nearest) in having few long-stalked *obovate*-lanceolate leaves scattered on the stem, and spreading off at *right angles*, and a *short*, closely aggregated, abrupt spike, with linear spreading bractes. The plants were from 6 to 8 inches high, and seemed luxuriant and unlike the starved form of *G. sylvaticum* which is not uncommon at a lower elevation, and has ascending *linear* or linear-lanceolate leaves clothing the stem from the base. The heads of *sylvaticum* moreover are more elongated and spiked, and the florets are rather shorter in proportion to the involucreal scales. Our plant is probably *G. norvegicum*, which is considered specifically distinct from *G. sylvaticum*.

Juncus castaneus was abundant in the streamlet that falls into this gorge close to the edge of the precipice, and a few scattered plants grew in a bog many hundred feet below.

In returning we re-ascended the shoulder of the Glass Mhiel, and had again to steer our way amid the cloud, safely reaching the head of the pass just as the shades of evening closed around us.

Refreshed by a night's rest we crossed the moors to the head of Glen Callater, finding *Salix lanata*, *Cornus suecica*, and *Trientalis europæa*.

The comfortable inn at Braemar was our lodging-place that night, and on the following morning we started at an early hour for Loch-nagar, passing through the forests on the south side of the Dee. It was a lovely day, and the three tranquil tarns under the west cliffs of the mountain brilliantly reflected the blue sky above them, while the clearness of the distant landscape and general serenity foretold nothing of coming storms. On the ascent we gathered *Lycopodium annotinum*, *Pinus sylvestris* from its native woods, *Betula nana*, and *Azalea procumbens*. Our tract was up a steep, narrow ravine partially filled with snow, which (though condensed so as to resemble ice) still measured 4 feet in thickness. We cut niches for our feet, and so scrambled up its steep edge, careful to avoid a slip into the cavernous recesses underneath, which were quite large enough to hold us! On the top of the mountain we saw many of the plants noticed in the preceding excursions, and after surveying the 1200-foot precipice on the north-eastern side, followed a stream which (in four miles) led us

down to the edge of Loch Muick, near a fine waterfall. After scrambling along the side of the lake, dark threatening clouds gathering around the mountain tops, and obliterating them from the view, one by one, in rapid succession, gave us warning to ascend without loss of time, and recalled to mind an unusual atmospheric appearance in the horizon, that had claimed our notice from the top of Lochnagar.

We were soon enveloped, and had to steer our way amid the cloud along the mountain, almost exhausted by the violence of the wind and cold. Less than two hours were left to reach the foot of Loch Callater before nightfall, and our route was over mountains previously untrodden by us.

This point was gained just as daylight vanished, the glimmering reflection of the water barely sufficing to point out the rough foot-track leading to the gamekeeper's cottage at the foot of the lake. After $14\frac{1}{2}$ hours of almost incessant walking we arrived there in time to learn that the conveyance appointed to meet us had left about 10 minutes, its driver considering the case hopeless.

The storm had now increased in fury, and rain began to pour down in torrents, making the idea of another turn out anything but delectable. Knowing, however, that our companion who had gone before us to Braemar would be anxious, we ventured forth after regaling on oat cake and milk, having more than 5 miles to go, besides the necessity of wading through a rapid river in the dark.

The storm continued unabated all the way, and when safely lodged at Braemar we could still hear its raging, and feel thankful for our shelter. More than 100 seamen were lost that night on the east coast of Scotland.

JAMES BACKHOUSE, JUNR.

THE DUNDEE NATURALISTS' ASSOCIATION.

December 5, 1848.—The President in the chair.

A paper was read from Mr. Geo. Lawson (Edinburgh), being an account of a visit to Arniston Woods, near Edinburgh, in which some interesting plants were noticed as having been gathered, such as *Hookeria lucens*, *Bryum ligulatum*, *B. punctatum*, *Dicranum bryoïdes*, *Peziza coccinea*, &c.

A note from Mr. Wm. Anderson was read, recording a new station for *Saponaria officinalis* in Forfarshire; viz., "North side of the

South Esk, about a quarter of a mile above the service bridge at Brechin Castle, on the top of a sunk fence, abundantly, and where it has been known to grow for the last 10 years. Probably introduced."

A note was also read from Mr. Geo. Lawson on the occurrence of *Specularia hybrida* in Fifeshire.

Mr. James Wyllie read a paper on the common barn-door hen assuming the plumage of the male.

A specimen, with fertile flower, of the *Udora canadensis* was exhibited from Mr. Geo. Lawson, who had received it from Miss Kirby, of Leicester.

A donation to the Library was announced from Mr. Geo. Lawson.

Plants had been received from Mr. Wm. Anderson, Mr. James Wyllie, D. E. Smith, Esq., and Geo. Lawson, Esq.

Charles Roger, Esq., of Dundee, and D. E. Smith, Esq., of Edinburgh, were elected members.—*W. M. O.*

Naturalization of Petasites albus near Huddersfield.

By PETER INCHBALD, Esq.

A LARGE patch of this early-flowering plant occurs in an oak wood north of the hall. It is growing in a damp stony hollow, and covers many yards with its strong penetrating roots, which creep above ground among the stones in every direction. Reichenbach states, in his 'Flora Germanica,' that this species occurs on the continent in woody mountainous tracts, and gives April and May as its time of flowering. With us it flowers in February and March, and is nearly over by the middle of April.

PETER INCHBALD.

Storthes Hall, near Huddersfield,
December, 1848.

Record of the rarer Plants occurring in the Neighbourhood of Adwick, four miles north of Doncaster. By PETER INCHBALD, Esq.

DONCASTER is pleasantly situated in the south of Yorkshire, not many miles from the borders of Nottinghamshire. It is in the very midst of the magnesian limestone, which thence trends northwards in a direct line to the banks of the Tees. The Flora of Adwick, a vil-

lage about four miles north of Doncaster, may be taken as generally characteristic of the vegetation of the limestone formation; and as I have devoted some years to a diligent canvas of that neighbourhood, I have pleasure in submitting the more interesting of my floral discoveries to the notice of the readers of the 'Phytologist.'

Ranunculaceæ. The alluvial meadows near Askern offer plants of *Thalictrum minus*. *Ranunculus Lingua* occurs in plenty in the boggy parts of Sutton Common. It flowers very shyly. *Helleborus viridis* abounds within the moat at Hangthwaite, covering a large space, and flowering very early in the year. *Aquilegia vulgaris* raises its clusters of beautiful blue flowers in the woods.

Cruciferæ. *Cardamine amara* grows beside the beck at Adwick. The pink anthers of its flowers contrast pleasingly with the pale delicate hue of the petals.

Violaceæ. *Viola hirta*, which occurs solely in chalk districts, usually flowers a few days earlier or later than the sweet violet, with which it grows interspersed.

Caryophylleæ. *Cerastium arvense*, a true limestone plant, is widely scattered throughout the neighbourhood. *Stellaria glauca*, whose foliage accords well with the specific appellation, occurs occasionally in ditches choked up with herbage.

Saxifrageæ. The boggy pastures at Askern are rendered gay in the late autumn months by the white blossoms of *Parnassia palustris*. *Saxifraga tridactylites* is widely dispersed, covering old walls and misshapen masses of stone.

Leguminosæ. The Roman Ridge, a remnant of the old northern road to Eboracum, offers many good plants. Among them I may notice in this tribe *Astragalus hypoglottis* and *A. glycyphyllos*, both occurring in considerable plenty. *Trifolium fragiferum*, so remarkable when in fruit for its curiously inflated calyces, is met with in wet pastures, on black boggy soil.

Rosaceæ. *Potentilla verna* grows on the old limestone crags at Smeaton. Those certain indicators of a limestone soil, *Sanguisorba officinalis* and *Poterium Sanguisorba*, are everywhere abundant. The leaves of the latter, when steeped in vinegar, give to it the flavour of cucumber. *Rosa villosa* I have occasionally noticed. *Geum rivale* I once gathered at Owston, a village far famed for its excellent cream-cheeses.

Umbelliferæ. The limestone soil is well adapted to this tribe: among others I may notice *Pastinaca sativa*, *Bupleurum rotundifolium*, *Pimpinella magna* and *P. Saxifraga*, and *Sison Amomum*.

Stellatæ. Dry limestone banks yield in profusion the *Asperula cynanchica*. The flowers vary from white to lilac, the segments of the corolla being veined longitudinally with deep pink.

Campanulaceæ. *Campanula glomerata* is abundant at the Roman Ridge, white varieties occasionally growing interspersed with plants of the ordinary colour. *C. patula* is said to grow near Doncaster, but I have never yet been fortunate enough to meet with it.

Compositæ. Noble plants of *Inula Conyza* are plentiful at the Ridge. *I. Helenium* once grew near Adwick: I have seen plants of this rare British flower in cultivation at Doncaster, that were originally growing wild in the neighbourhood. *Erigeron acre* and *Carlina vulgaris* occur likewise at the Ridge. *Filago apiculata* deserves especial notice, as being but recently added to our Flora. It was first discovered, I believe, by the Rev. G. E. Smith, at Cantley; and it really appears to have very good claims to specific distinction, loath though some of our best botanists may be to allow it. I would recommend all those who feel interested in the genus *Filago* to read Mr. Watson's admirable paper on the subject in the October number of the 'Phytologist' (Phytol. iii. 313).

Gentianeæ. *Gentiana amarella*, as variable in size as in the number of its flowers, is everywhere abundant on dry uplands. *Chlora perfoliata* is far less frequent, usually preferring more hilly localities than the autumnal gentian.

Solaneæ. Several habitats are recorded near Doncaster for *Atropa belladonna*. Both this plant and its poisonous ally, *Hyoscyamus niger*, are singularly frequent in church-yards, the latter not unfrequently making its appearance on mould that has been thrown up in forming vaults.

Primulaceæ. Many beautiful plants of this tribe are met with in the district. *Hottonia palustris*, that ornament to stagnant waters, covers the ditches with its leaves and whorls of pretty pink flowers. *Anagallis cærulea* and *A. tenella* are not unfrequent. *Lysimachia vulgaris* I have gathered from one or two localities. The curious *Samolus Valerandi* may occasionally be observed in damp watery places. *Primula elatior* occurs in the woods near Doncaster, with some scapes bearing umbellate, and others solitary flowers; thus showing its close affinity to the *P. vulgaris*.

Scrophularineæ. *Veronica triphyllos* is found in sandy places at Cantley. It grows near York in similar situations.

Orobanchæ. *Lathræa squamaria*, one of our few epiphytes, may be found in Hampole Wood towards the close of April. It is usually parasitical on the roots of the hazel and ash.

Labiatae. *Mentha piperita* and *M. rotundifolia*. *Leonurus cardiaca*, a rare plant, is not unfrequent near Doncaster. The same may be said of *Ballota nigra*, which, though generally diffused throughout the vale of York, is rare in the higher parts of the county. It occurs with *white* flowers near Doncaster. *Nepeta Cataria* and *Origanum vulgare* may occasionally be noticed on bushy hedge-banks.

Thymeleæ. *Daphne Laureola* occurs in the wildest profusion in the hedges near Brodsworth, far from any trace of garden cultivation. Its early flowering and delightful fragrance render it a general favourite. Exotic species of *Daphne* thrive well when grafted on our wild stocks.

Euphorbiaceæ. *Euphorbia platyphyllos* I have met with on arable land, where it has no doubt been introduced with seed-corn.

Aroideæ. In the ditches at Askern, *Sparganium simplex* is as common as *S. ramosum*.

Alismaceæ. *Alisma ranunculoides* and *Sagittaria sagittifolia*. The bulb which grows at the lower part of the root of the latter plant is said to constitute a part of the food of the Chinese.

Hydrocharideæ. *Stratiotes aloides*, which occurs chiefly in the east of England, is common in the fens near Doncaster. The structure and economy of this plant are exceedingly curious.

Orchideæ. The Roman Ridge is richly productive of our representatives of this singular tribe of plants. *Orchis ustulata*, *O. pyramidalis*, *Gymnadenia conopsea*, *Habenaria bifolia*, *Ophrys apifera*, *O. muscifera*, *Spiranthes autumnalis*, *Neottia Nidus-avis* all occur within a very limited range.

Amaryllideæ. *Narcissus biflorus*, a doubtful native, grows and flowers abundantly in a grass-field not far from the village of Adwick. Its ally, *N. pseudo-narcissus*, known in Devonshire by the name of the Lent lily, is exceedingly plentiful in Hampole Wood, covering hundreds of yards with its simple yellow bells.

Asparageæ. The woods around Doncaster abound with *Convallaria majalis*, which flowers much more freely in its wild state than when in cultivation. *Paris quadrifolia*, not unfrequently belying its specific name by presenting whorls of 2, 3, 5, 6, 7, and 8 leaves, is very common throughout the greatest part of the county.

Liliaceæ. *Ornithogalum umbellatum* grows in several patches in a pasture between Adwick and Pigburn, and flowers well. The locality in which it occurs does not exhibit the slightest trace of garden cultivation.

Cyperaceæ. Noble plants of the rare *Cladium Mariscus* grow in the fens at Askern. Babington says of this interesting plant "rare

except in Cambridgeshire." It flourishes here in some plenty, interspersed with *Scirpus Tabernæmontani*, and that most beautiful of the Carices, *C. pseudo-Cyperus*. The other less common Carices that this small watering-place affords to the botanist are *C. pulicaris*, *C. teretiuscula*, and *C. intermedia*. The rare *C. digitata* was noticed at Roche Abbey by the Rev. G. E. Smith.

Gramineæ. Among the Gramineæ I may record *Glyceria aquatica*, with stems full six feet high, *Poa rigida*, and *Brachypodium pinnatum*, on dry limestone soil.

Filices. The local *Lastræa Thelypteris* occurs in the fens at Askern with fronds above two feet long. The soil is exactly such as Mr. Newman observes to be suited to the growth of this species, "moist and soft, so that the rhizoma can extend itself with rapidity and freedom."* *L. Oreopteris*, a fern, as its name would imply, of mountain heaths, occurs in Melton Wood, and fruits in this situation abundantly, the frond rising to the height of above two feet, and emitting, when bruised, a fine aromatic odour from the resinous globules which dot its under surface. *Polystichum angulare* grows in plenty on Edlington Crags.

PETER INCHBALD.

Storthes Hall, near Huddersfield,
January, 1849.

Adiantum Capillus-Veneris not found in Derbyshire.

By JAMES BACKHOUSE, JUNR., Esq.

I HAVE seen Henry Ecroyd Smith's specimens of [so called] *Adiantum Capillus-Veneris*, recorded (Phytol. iii. 11) as growing on the Peak of Derbyshire, and I can certainly say that they have no claim whatever to be classed under the genus *Adiantum*, being evidently seedling forms of *Asplenium Trichomanes*, with the leaflets more attenuated and rather more incised than usual; probably from having grown in a moist, shady place, or amongst thick vegetation. H. E. Smith is, I believe, quite satisfied on this point now. In this state there is a strong resemblance in the leaflets to those of *A. Capillus-Veneris*.

JAMES BACKHOUSE, JUNR.

York, February 1, 1849.

* 'British Ferns,' 183.

Notice of the 'London Journal of Botany,' Nos. 83 and 84, for December, 1848.

WE had brought up our customary notices of this periodical to No. 82, published in October. None was published in the succeeding month, but a double Number, or two in one, came out some time in December; and with this double issue the work becomes extinct in name, though not in reality. In order to complete our notices of the extinguished periodical, a list of the contents of these two final Nos. is subjoined:

Nos. 83, 84. *Original Papers*: *Ficum Species Nigritianæ*; by F. A. W. Miquel. Note on *Anemia Seemanni*; on *Ranunculus Javanicus*; of a new species of *Pentagonia*; all three by the Editor. Note on the genus *Benjaminia*; by G. Bentham. Account of a new British Saxifrage; by W. H. Harvey. Decades of Fungi; by M. J. Berkeley. Enumeration of *Leguminosæ*; by G. Bentham. Description of a new *Sonerilla*; by the Editor. *Botanical Information*: Dr. Thomson's Botanical Mission to Thibet.

In this list of 'Contents' the title most likely to attract the attention of British phytologicals, is the account of a new British Saxifrage. In conformity with a custom so inconvenient for readers of a periodical, the plate which represented the new Saxifrage was given in the Number of the Journal for October, while the descriptive letterpress was reserved for December. The new species belongs to the group of *S. umbrosa* and *Geum* by general habit, but differs remarkably enough in the character of its flowers; so much so, indeed, that by botanists fond of minute generic distinctions it might be referred to a different genus from *S. umbrosa*, although it may eventually prove to be only a monstrous or abnormal form of that same polymorphous species. "In the *umbrosa* group," observes Dr. Harvey, "the calyx is parted to the base, the sepals are perfectly free from the ovary, and are strongly reflexed soon after the expansion of the flower. In our new species the calyx is gamosepalous, cleft two-thirds of its length, the tubercular [tubular?] portion adheres to the base of the ovary, and the limb, instead of being reflexed, is simply spreading. Add to this, that the petals are much broader and more elliptical than in any of the group, and are elegantly dotted over the whole surface, and we have characters sufficient, I should hope, to mark a species even among a set so proverbially undefinable."

Unfortunately, this new species of Saxifrage has been seen in

flower only in a garden, to which the wild root, in its flowerless state, had been removed by Mr. Andrews, whose name it appropriately bears, not only as that of the discoverer of this particular species or variety, but as that of a botanist who has devoted more attention to the Saxifrages of Ireland, and acquired a more exact and familiar acquaintance with their proteiform characters, than can be claimed by any other of Her Majesty's subjects. The discovery of this remarkable example was curious, and merits quotation in the words of Mr. Andrews, as a good illustration of the advantage which may result from exact observation of varieties, or what appear to be such.

"With regard to my Saxifrage," writes Mr. Andrews, "I have but little to say beyond the following. Professor Allman, on the 25th of June, 1845, read a paper at one of the sectional meetings of the British Association, held at Cambridge, conveying my views of the Robertsonian Saxifrages. In the views (which were altogether in opposition to those advanced by Mr. Babington, and published by him in the 'Annals of Natural History' for June, 1844) I stated, as my opinion, that all the forms of *Geum* and *umbrosa* of Ireland, were identical with those of the Pyrenees, and that forms of leaves of *Geum*, equally as obtusely crenate as those of the Pyrenees, were met with in Kerry. Further, that all these forms passed so completely into each other, that neither *hirsuta*, *elegans*, nor *serratifolia* had any pretension to specific difference. This view of the subject has since been confirmed by Mr. Spruce, as noted in the 'London Journal of Botany' for July, 1846; but Mr. Babington has not yet found time to correct any of the statements in the journal where they have been so positively asserted by him. To strengthen still further my points, I assiduously, in September, 1845, collected in my rambles in Kerry, every form of leaf of *Geum* and *umbrosa* that I could meet with, and among them found the very remarkable form of leaf of the plant that you have so kindly undertaken to draw and describe. The specimens of this last were collected, growing on moist cliffs of a mountain at the extreme termination of Glen Caragh, either Cluan or Claraby, I am not certain which. They were not in flower at the time of gathering. I removed roots to my garden, where they did not produce flowers till this season (June, 1848), when the more remarkable characters were apparent."

The individual writer of this notice can fully confirm the statements of Mr. Andrews, in respect to the very variable forms and serratures of the leaves of the Robertsonian Saxifrages of Ireland; as well as their general identity, in these respects, with examples of the same

species from the Pyrenees; having examined a numerous series of specimens from the latter habitat, and also a large number collected in Ireland by Mr. Andrews; besides raising some hundreds of them in his own garden, from seeds kindly sent to him by that gentleman. Mr. Babington's acuteness and accuracy of observation, as a botanist, are thoroughly established; and he could well afford to acknowledge a mistake which arose only from trusting to the characters of an insufficient series of specimens; but which really assumes a much more unfavourable aspect, through being allowed to remain uncorrected, while there is assuredly a scientific, if not a moral, obligation upon him to make the correction of an error which he has been the means of widely diffusing, however unintentionally and accidentally.

We mentioned above, that the 'London Journal of Botany' becomes extinct with the double Number now under notice. It is, however, continued in a smaller and lower-priced form, under title of 'Hooker's Journal of Botany and KEW GARDEN MISCELLANY.' The first division of this new title has been long in use orally, though not adopted in print, for the periodical conducted during many years by that distinguished botanist, under several successive names. The second portion of the title now adopted, being printed in larger type on the cover, is probably intended to be the name for current use. If so, we think it at once the selection and the mistake of the publisher, and that he would have found it a most unremunerative designation without the prefixed 'Journal of Botany.'

We refrain at present from making any list of contents, or expressing any opinion of the Journal in its changed form. It is decidedly an experiment in periodical literature, to bring out a journal so low in price, written by and for scientific botanists, who must be few in number, but we hope that all those few will give their support to the publishers, as subscribers at least. C.

*Errata in Mr. Steven's Notes on the Flora of Dumfriesshire,
Phytol. iii. 390.*

Page 390, and wherever it occurs, for *Loch Skew* read *Loch Skene*.

„ 391, for *Penpout* read *Penpont*.

„ 391, and wherever it occurs, for *Mare's-tail* read *Mare's Tail*.

„ 392, for *Darrisdere* read *Durrisdere*.

„ 393, for *Nynron* read *Tynron*.

Discovery of Simethis bicolor in Ireland. (Communicated by
HEWETT C. WATSON, Esq.)

PERHAPS the Editor of the 'Phytologist' will allow me to give additional circulation to an interesting fact, lately announced in the 'London Journal of Botany,' but likely to be overlooked by many botanists; since it is mentioned only incidentally in a paper on another subject, and has not found place in the Index of the volume in which it was announced. I allude to the discovery of *Simethis bicolor* in Ireland. According to Dr. Harvey, this plant, so lately first discovered in England, "has been found by Mr. Thaddeus O'Mahony, growing in a perfectly wild situation on hills near Derrynane Abbey, the seat of the O'Connells. The hills where this plant grows have probably never been turned up, and the plant has certainly never been cultivated in a neighbouring garden. A specimen agreeing in all respects with a Portuguese one in the University Herbarium, was sent to me in June last." ('London Journal of Botany,' vol. vii., p. 571).

HEWETT C. WATSON.

Thames Ditton, February 4, 1849.

Occurrence of Doronicum plantagineum at Shooter's Hill.

By GEORGE LUXFORD, Esq.

ABOUT the middle of May, 1848, while out on an excursion with my botanical class, I had the pleasure of finding *Doronicum plantagineum*, in considerable plenty and in full flower, in a wood at the back of Shooter's Hill, Kent.

From the high road to Dartford, at the top of the hill, and almost directly opposite the Bull Inn, a lane leads off to the right, through a wood, I believe West Wood; the plant was growing to the left of this lane among the trees, and in situations where intruders will probably be civilly informed by a keeper that they are trespassing on the private property of the Crown.

About a week afterwards a friend found the *Doronicum* growing plentifully in a wood nearer Chiselhurst. I do not know the exact locality.

GEO. LUXFORD.

East Temple Chambers, Fleet St.,
February 11, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, February 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced:—

British plants from Mr. Hewett Watson, Mr. A. Henfrey, Mr. G. Reece, Dr. Bidwell, Mr. F. J. A. Hort, the Rev. John Bigge, Mr. G. Francis, Mr. G. Maw, the Rev. W. R. Crotch, Mr. A. H. Balfour, Mr. G. Lawson, and Miss M. Beevor. Foreign plants from Mr. G. Francis.

Jussieu's 'Elements of Botany,' translated by Mr. J. H. Wilson, F.L.S., presented by the translator. 'Journal of the Royal Agricultural Society of England,' presented by the Society. 'Journal of the Pharmaceutical Society,' presented by the Society. Nos. 1 and 2 of the 'Botanical Gazette,' edited by Mr. A. Henfrey, F.L.S., presented by the Editor. 'Materials for a Fauna and Flora of Swansea and the Neighbourhood,' by L. W. Dilwyn, Esq., F.R.S., presented by James Motley, Esq. 'Report of the Dublin University Museum' for 1848, presented by the University. 'The Agricultural Magazine,' presented by the Editor.

The Rev. Francis Dyson, of Tentworth, Marlborough, Mr. T. Clark, Junr., of Halesleigh, Bridgewater, Mr. W. B. Booth, A.L.S., of Carclew, Cornwall, Mr. W. J. Burke, of Kilbride, Wicklow, Mr. T. Kirk, of Coventry, Mr. J. T. Duthoit, and Mr. Hedger, of London, were elected members.

Several specimens from Mr. Hewett Watson, Mr. F. Barham, Mr. W. H. Purchas, and Mr. S. P. Woodward, in illustration of recently distinguished species, curious varieties, &c., were exhibited. Among them were examples of *Hieracium alpinum* with the scapes branched and leafy, showing a transition to the section of stem-producing species. Also a curious example of *Carex atrata*, in which the character and position of the flower-spikes were widely different from their ordinary condition, giving to the specimen a first-sight appearance similar to that of a very luxuriant *C. rigida*, the terminal spike being almost entirely male, and cylindrical; four inferior spikes of female flowers, with a few males interspersed, cylindrical or oblong, erect, and placed rather distantly one below another, the lowest about three inches beneath the terminal male spike. The specimen had grown in Mr. Watson's garden, on a root of *Carex atrata* brought from the Grampians a few years ago.—*G. E. D.*

Nephrodium fœnisecii of Lowe identical with *Lastræa recurva*.

By EDWARD NEWMAN.

MR. WATSON has obligingly forwarded me a suite of specimens of Lowe's *Nephrodium fœnisecii*, collected in Madeira, and has accompanied the specimens with a series of questions relating thereto, and drawn up with the view of fixing the prior specific name of *fœnisecii* on both the Madeiran and British plants.

I am now fully convinced that Mr. Lowe intended to describe the species subsequently characterized by Mr. Bree under the name *recurva*, and also that Mr. Lowe's *fœnisecii*, β . *productum*, is not a second species, but a very trivial variety in form only: under these circumstances it seems to me that we have no choice but to adopt the prior name.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
February, 1849.

*Notice of a Paper on three supposed Species of Polystichum, by
Professor Kunze.*

WHATEVER is done by a botanist bearing so high a reputation for knowledge of Europæan ferns as Professor Kunze must deserve the serious *consideration* of all lovers of truth. But more than this we are not prepared to admit: we are not prepared to say that any amount of reputation should insure the adoption of proposed species.

In the paper to which we allude* Professor Kunze describes at great length those forms of *Polystichum* which are usually known in this country as the "*aculeatum set*:" he makes three species under the names of *lobatum*, *aculeatum* and *Braunii*. *Lobatum*, he informs us, = the *Aspidium lobatum* of Smith, 'Fl. Brit.' iii. 1123, and of 'English Botany,' 1563: *aculeatum* = the *Aspidium aculeatum* of Smith, 'Fl. Brit.' iii. 1120: and *Braunii* = the *Aspidium angulare* of Kitaibel (first described by Willdenow in the 'Species Plantarum,' v. 257) only in part. There is no point more preeminently a *quæstio vexata* among British botanists than the value of those differences which distinguish certain individual plants of the "*aculeatum set*"

* Flora, June, 1848.

from each other. The most extreme opinions are entertained: some asserting that these are *specific* differences; others saying they are indicative only of *variety*; others again maintaining that the discrepancies are those only of *individuals*. Again, we find some botanists contending that we have three species in this country: others that we have two; others that we have but one. Amid this conflict of opinion it is quite a privilege to find a pteridologist of Kunze's eminence devoting his talents to the subject. Would we could accept his solution as final, and thus terminate a discussion which has hitherto so little advantaged the study of the tribe. It is impossible to charge him with want of care, want of exactitude, want of terms wherewith to express his meaning, or want of knowledge of the labours of others. He describes with admirable precision three fronds, or perhaps plants, which he has before him: he trusts to his own observation alone, and each description bears indubitable evidence of fidelity and originality: with the fronds or plants before us, and we have seen many such, we could at once distinguish for which each description was intended; but when we carefully consider the differences pointed out; when we weigh them against the differences existing between ascertained species; we cannot avoid pausing before we assign them the importance of diagnostics for the separation of species. Let us examine the leading characters in the extreme species, lobatum and Braunii.

Lobatum has the frond *linear-lanceolate, shortly acuminate, very much attenuated at the base, coriaceous, rigid, sub-bipinnate*.

Braunii has the frond *lanceolate, shortly acuminate, very much but gradually attenuated at the base, membranaceous, rather flaccid, bipinnato-subpinnated or bipinnate*.

It will be observed that in lobatum the frond is 'linear-lanceolate' instead of 'lanceolate,' 'coriaceous and rigid' instead of 'membranaceous and somewhat flaccid.'

Passing over the pinnæ, the descriptions of which might be transposed without its being detected, we have the pinnules described

In lobatum as *sessile and decurrent*

In Braunii as *sessile and adnate-decurrent*.

The sori are

In lobatum *small, flattish, ferruginous, brown, at length confluent*.

In Braunii they are of the middle magnitude, convex, brown, at length contiguous, sub-confluent.

The scales of the stipes

In lobatum are *large and brown, and intermixed with smaller piliform ones*

In *Braunii* some are large, pale, and lanceolate, intermixed with others smaller, hair-like, and of the same colour.

We have purposely made the differences described by the author as salient as possible, omitting the detail which offers little or nothing of a decided character. Before quitting the subject we would, however, remark, that both *lobatum* and *Braunii* have subsessile and decurrent pinnules, while *aculeatum*, intervening between them, has the pinnules petiolate; thus the character on which we had most relied in this country for separating the extremes, appears to be held by our author as of no importance.

K.

Abstract of a Paper by Professor Edward Forbes on some Peloria Varieties of Viola canina. Extracted from the 'Proceedings of the Linnean Society,' xxxvi. 382.

THESE monstrosities were collected by Prof. Forbes in the Isle of Portland in the month of April. The plants in which they occurred were infested by the parasitic fungus figured in Sowerby's 'English Fungi' under the name of *Granularia Violæ*, and afforded not only many distortions of the foliaceous organs evidently due to the presence of the fungus, but also various monstrosities of the flower, of which the author gives a particular description illustrated by drawings.

These were found chiefly in the small variety of *Viola canina*, figured in the 'Supplement to English Botany' as *Viola flavicornis*. One of these plants had two two-spurred flowers exactly similar and deviating from the ordinary structure in the following particulars:—There were four sepals, all enlarged and diseased, the superior being smaller than the others, the two lateral equal but abnormally large, and the anterior largest and not quite regular. The petals were also four in number, the two uppermost being regular and the two lowermost spurred. Each of the former had the little tufts of hairs seen on the lateral petals in the normal flower, and were similarly pale at the base and lineated with purple, while the two spurred petals were smooth and lineated. Of the four stamens the three uppermost were normal, the fourth much enlarged; there were no antherine appendages, but at the bottom of each petal-spur there was a strong ridge not usually present and as if representing these appendages. From these appearances the author infers that in these instances the two superior petals were abortive, the tufts of hairs on the two remaining

superior petals showing that they correspond with the two lateral petals of the ordinary flower; and that the two spurred petals were developed in the place of the ordinary single anterior petal. He regards the enlarged anterior stamen as consisting of two, each making an unsuccessful effort to develop an appendage; and the enlarged anterior sepal also as made up of the union of the two ordinary lower sepals.

In the former case the floral envelopes were regulated by the number 4: Prof. Forbes proceeds to describe a still more remarkable case of *Peloria*, in which they were regulated by the number 3. The three sepals are of normal and equal dimensions and the three petals all spurred, and nearly but not quite equal, the odd one, which is inferior, having a larger spur than either of the other two. There is no tuft of hairs on any of the petals, but they are all lineated. The stamens are five, all furnished with appendages, the two lowermost of which, fully developed, penetrate the spur of the anterior petal, while the spur of the left upper petal receives the fully-developed appendage of one of the stamens, and that of the right also one fully-developed appendage, the appendage of the fifth stamen (small and only partially developed) bending back after proceeding only a little way. A little below the flower, between it and the true bractæ, which present their usual appearance, there is a whorl of five bract-like sepals, between two of which, and directly beneath the largest-spurred petal of the monstrous flower, is a single petal partially developed and exhibiting an abortive spur. "In this case," the author proceeds, "we have the outer whorl of floral envelopes developed, and an effort made towards the development of the second in the aborted basal petal; then the axis elongating and terminating in a flower in which two of the sepals are aborted and four of the petals, viz., the two lateral and two superior ones, for the absence of tufts of hairs prevents our regarding two of the three as the former, and the presence of lineated bases shows that they are not the latter. They are repetitions of the basal petal, which in this instance is multiplied by three, as in the cases before described it was multiplied by two." In this plant no traces of the fungus were observed.

Prof. Forbes cites the instances of *Peloria* among Violets recorded by Leers and DeCandolle, and refers to the view adopted by the latter and by M. Moquin-Tandon, viz., that the *Peloria* is caused by the tendency of all the petals to assume a spurred condition in consequence of a general effort as it were on the part of an irregular flower to become regular. He states that DeCandolle's figures are not suf-

ficient to enable him to judge if such was the case in the instances depicted by him, but maintains that the Peloria violets which form the subject of the present communication "owe their monstrous regularity to a very different phenomenon, viz., *the effort of an irregular flower to become regular by the multiplication and symmetricalization of its irregular parts.*"

Dates of the Flowering of British Plants.

By ISAIAH W. N. KEYS, Esq.

August 19, 1848. Atriplex rosea luxuriant on the embankment of the Laira, the embouchure of the river Plym, near Plymouth. Many plants in ripe fruit. Hooker, "Fl. Sept." The surface of the embankment just named is formed of slates vertically placed, between which the roots of the Atriplex descended to the depth in some instances of a foot or more. Remarked here the leaves of Tussilago Farfara. This is an additional instance (Phytol. iii. 307) of the variety of soil on which this plant grows. On the borders of the salt-water ditch adjoining this embankment, the Sonchus arvensis (mark, arvensis!) is colonized in a very rank condition. I have examined this plant repeatedly, and can make nothing else of it. Mr. Babington, to whom I have shown it, calls it by this name. I should be glad to learn whether any of your correspondents have elsewhere noticed a similar eccentricity in this plant. It certainly has gone far from its wonted abode in roving from the corn-field to the brink of a salt ditch. Within a few yards of it grow Juncus lamprocarpus and J. conglomeratus, Carex divulsa, "*et hoc genus omne.*"

August 21. No flowering-period for Melissa officinalis being mentioned in the 'Manual of Botany,' I may record having gathered it this day, near Alphington. As this plant is considered merely "naturalized," it may be interesting to mention that it grows near some cottages at Rame, Cornwall (about six miles from Plymouth); and that one of its habitats in this neighbourhood has been recently destroyed by the South Devon railway. Lycopsis arvensis in flower on the road-side, near Exminster. Hooker, "Fl. June, July." Babington, "6, 7." Also, Chelidonium majus in fl. Hooker, "Fl. May, June." Babington is right: he says "5—8." Epilobium hirsutum in fl. Hooker, "Fl. July." Babington is right here also: "7, 8." Myosotis cæspitosa in fl. Hooker, "Fl. May, June." Babington,

"6 to 8" (right). *Lycopus europæus* in fl. Hooker, "Fl. June, July." Babington, "7, 8" (right). It will be observed that all the plants mentioned under this day were in bloom beyond the periods prescribed in the 'British Flora,' 5th edition.

September 20. A friend gave me specimens of the following plants, gathered the day before: *Radiola Millegrana*. Hooker, "Fl. July, Aug." Babington, the same. *Sedum Telephium*. Hooker, "Fl. July." Babington, "7, 8." *Pinguicula lusitanica*. Hooker, "Fl. June, July." Babington, "7." *Drosera rotundifolia*. Hooker, "Fl. July." Babington, "7, 8." All these were thus in flower considerably later than described. They grow near Shaugh, some six miles or more from Plymouth; and had I been in want of them, I should have thought it hopeless to search for them at this advanced period of the month. "*Nil desperandum*," must, however, I think be my future motto, when engaged in botanizing.

September 22. Stimulated by my friend's success, adverted to in the last paragraph, I this day made a trip to the locality which he had so recently visited. Not finding the boggy spot where the plants grew, the enthymeme that I did not find the *plants*, will be readily admitted. But, though disappointed in this respect, I did not regret my excursion; for it brought me within view of the romantic crags that abound on the confines of Dartmoor. Here rises in majesty the Dewer-Stone, ever hallowed by the sweet strains of Devon's greatest poet, Carrington; and here commingle the flashing, leaping, roaring rivers Cad and Meavy, and become the parents of the Plym. Nor did I return with an entirely empty vasculum, having availed myself of the opportunity to replenish my stock of *Wahlenbergia hederacea*, which is plentiful in the neighbourhood. Remark that it was now late in September, and the plant in full bloom, particularly on the borders of a piece of heathy ground, where it grew among furze. Hooker says "Fl. July, August." Babington, the same. *Sarothamnus scoparius* was in fl. Restricted by Hooker to "June;" and by Babington to the "5th and 6th" months. *Galium palustre* in fl. Like the rest unwilling to depart. Hooker names "July" as its flowering-season, and Babington the "7th and 8th" months.

September 24. *Verbascum Blattaria* in fl. near Devonport. Hooker, "Fl. July." Babington, "8." I know but of one station for this plant; and its colour is not *yellow*, but whitish or cream-coloured, tinged more or less with purple. *Alsine marina* in fl. Hooker, "Fl. June, July." Babington gives greater latitude, "6—8."

October 15. Took a country walk. Leaves of the trees falling

around, bespeaking the approach of winter. A few composite plants remain in bloom, especially *Senecio Jacobæa* (Hooker, "July, Aug." Babington, "7 to 9") and *Chrysanthemum leucanthemum* (Hooker, "June, July." Babington, "6 to 8"). On a piece of elevated, stony ground near a plantation, saw four plants of *Viola canina* in fl., with one capsule nearly ripe. How untimely, I thought, was their appearance. What was the cause? Were they lingerers in the train of Summer — mourners over its faded splendours? Or were they to be regarded as pioneers in advance of the distant spring—as harbingers of brighter days to come?

November 26. Weather mild. Found in fl. in comparatively sheltered lanes, but near the sea-coast, *Jasione montana*, *Achillæa Millefolium*, *Senecio Jacobæa*, *Crepis virens*, *Ranunculus acris*, *Geranium Robertianum*, *Betonica officinalis*, *Linaria Cymbalaria* (this on garden walls), and *Erythræa Centaurium*. I will not unnecessarily encumber your pages by quoting the range of flowering-season given in books to the plants just named. Such of your readers as may feel interested in the subject will refer for themselves. Suffice it to say, that they should (according to the writers) have long since fallen asleep.

Christmas Day. Weather moist and mild. *Geranium Robertianum* and *Lychnis dioica*, as well as *Crepis virens*, still in bloom, at Maker, Cornwall. *Iris fœtidissima* had not yet discharged all its bright red seeds. They were showing conspicuously in the large spreading seed-vessels. Furze in fl. In the garden of a friend at this place, primroses, "that come before their time," were daring to unfold their petals; and the large periwinkle was fully open. In the fields, daisies, richly crimson-tipped, were boldly parading themselves. I have remarked that the crimson tinge of the outer florets of the daisy is more deep and exquisite in winter than in summer.

The season mild and wet to the end of the year. *Vale, Vale,*
1848!

ISAIAH W. N. KEYS.

Plymouth, February 16, 1849.

Notice of 'Flora Hertfordiensis: or a Catalogue of Plants found in the County of Hertford, with the Stations of the rarer Species.' Part IV. By the Rev. R. H. WEBB, M.A., and the Rev. W. H. COLEMAN, M.A.

WE gave a notice of the above-named work, on publication of Part First, last summer (Phytol. iii. 184). Its appearance was then greeted with much satisfaction, as that of a really valuable addition to our lo-

cal Floras; and certainly with no diminished satisfaction do we now see it brought to completion by the publication of Part IV. The attention of our readers is again drawn towards the work, because we desire earnestly that it should become generally known to all who may be likely to write on local botany for the press. We have called it a valuable addition to the local Floras previously published; but it is more than this: it is a new starting-point, behind which its successors cannot lag, without being rendered amenable to unfavourable comparisons. Hitherto, a local Flora has usually come before the public under false pretences; professing to be what it was not. The Flora of a county, for example, has commonly included a pretty complete list of species and localities for a small part of its county, namely, that immediately surrounding the dwelling-place of the author; interspersed with an imperfect list of species and localities for all the rest of the much wider area which it professed to embrace; the indications of frequency or infrequency, in like manner, being founded upon equally limited and imperfect research, although applied to the whole county. Nor have these defects been characteristic only of Floras ostensibly embracing whole counties or other equally wide spaces; for some of the most imperfect and hastily got up Floras have related to small circuits around provincial towns, most superficially and partially examined by the authors.

We must admit that such defects, arising from incomplete or unequal examination of the area embraced in a publication on local botany, cannot be wholly avoided. Nor is the 'Flora Hertfordiensis' itself altogether free from them; certain portions of the county having evidently and confessedly been much less thoroughly investigated than others. Two obvious correctives present themselves, in the way of remedies or guards to prevent misinformation being thus given; and both of these appear in the 'Flora Hertfordiensis.' The one, is that of limiting a Flora to the space which has been actually and thoroughly examined; the other, that of distinguishing the well-investigated from the ill-investigated portions of the whole space. In the Flora now under view, the county is divided into three principal divisions, and these again into twelve subordinate sections. And as the species are severally traced through each division and section, so far as ascertained to occur in them, with a tabular summary of the numerical results, we gain an amount of positive information, and a probable test of negative information, such as we should vainly endeavour to extract from any other local Flora, written in the ordinary method. The 'Flora Hertfordiensis,' in truth, is far more than a

‘Catalogue of Plants found in the County of Hertford.’ Over and above this one general list of species for the county, it comprehends twelve several Floras, which are more or less complete catalogues of species, for as many different sections of the county; also three distinct Floras for larger tracts, formed from the union of minor sections. The list of species for one of these sections, comprising an area of eighty square miles around the county town, is probably more complete than any local Flora hitherto published; since we find it including the large number of eight hundred and two species; while the smallest sectional list rises to the respectable number of four hundred and ninety-three species, for an area of sixty square miles.

The full value of the ‘Flora Hertfordiensis,’ as a contribution to geographical, as well as to strictly local botany, will not be properly understood and appreciated until we can obtain other similar publications, on which to found statistical estimates and comparisons. Some quarter of a century hence, this improved conception of a local Flora may have become familiar and normal with the botanists of that future period; and possibly enough it may have been again improved upon in some of its details. But the genuine idea is now before us; namely, that of rendering a local Flora truly an exposition of local botany, instead of being simply a list of English plants, adapted to a local space: the difference between these two things is very great. But we will abstain from further remarks ourselves, and proceed to cull a few extracts, which may interest readers of the ‘Phytologist,’ and convey a sort of sample of its contents. The plan or method of the work must be studied in its own pages.

Authorship of the Work. “The writer could wish here to state that, from the period of the first announcement of the Flora, made in the spring of 1840, up to the summer of 1847, his friend Mr. Coleman and himself were intimately connected in collecting information for the work; and though from the latter date until after the publication of Part I., his friend’s co-operation was suspended, still, since that stage of the work, Mr. C. has so zealously assisted him in revising and conducting the remainder through the press, that he cannot but consider that Mr. Coleman justly holds with him the position of joint-author, and would feel his disappointment very great were their names not to be associated in the title page.”—(R. H. W.).

Motto suggested. “My friend Mr. Babington has just sent me the following motto from Linnæus, which is so appropriate and happy, that I cannot conclude these remarks better than by commending it to the consideration of my readers, hoping it may help to excite their

botanical ardour. ‘Turpe est in patria vivere et patriam ignorare.’—*Linn. Fauna Suecica*, Ed. 2 (1761), p. 544.”—(R. H. W.).

Bromus tectorum, Linn. “Near the new mill at Hoddesdon. This is the first notice of the plant which has appeared in England. Our zealous correspondent, Mr. Henry Williams, observed it in the above given locality in the summer of 1847, and again in 1848. He sent it to us, named *B. diandrus*, but not feeling satisfied about its identity, we referred it to Mr. Babington, who has determined it to be the true *B. tectorum*, and has kindly undertaken to describe it.” “Since the above paper was written, we have learnt that the station is nearer the ‘New Mill’ than we had supposed, and that the plant was found in company with *Setaria glauca*, which circumstances render it not improbable that it may have been introduced with imported seed like other plants before-mentioned which have been found in a similar situation.”

Digitaria sanguinalis, *Opismenus Crus-galli*, *Setaria viridis*, *Setaria glauca*, *Panicum (Setaria) verticillatum*. “With the exception of *Digitaria sanguinalis*, which has probably been imported with soil from the continent, all the preceding grasses have doubtless been brought with flax and cole-seed to the Oil Mills.”

Gastridium lendigerum. “A piece of heavy land on the east side of Bayford-wood, formerly ploughed, but long fallow and worthless as pasture, was ploughed up and sown with acorns and ash-keys, in the spring of 1841. In the following autumn appeared a plentiful crop of the present grass, which we have never noticed elsewhere in the neighbourhood. It had nearly disappeared in the autumn of 1842, and we have not seen it since.”

Epipactis purpurata. “In Box-wood, Stevenage; apparently parasitical on the stump of a tree. Mrs. Harding, of Walkern! 1840. By the kindness of Mrs. Harding we possess the only specimen which was found in this station, as well as a coloured sketch of the recent plant. The specimen is too young to afford any character, none of the flowers being expanded; but Mrs. Harding’s sketch represents the plant as wholly of a pale lilac colour, except that the flowers are yellowish. We have little doubt that our plant is that described by Smith in *E. F.*, from a specimen received from Abbott; and quite distinct from the plant of Forbes, figured in ‘English Botany,’ t. 2775, under the name of *E. purpurata*. This latter appears to be a mere form of *E. latifolia*; indeed, the figure is a better representation of the ordinary Herts form, than the *E. latifolia*, figured at t. 269 of the same work.”

Fagus sylvatica. "This forms the principal part of the timber in all woods in the western portion of the county, which might hence be denominated the '*Regio Fagi*,' or region of the beech; as the eastern might, in like manner, take the name of '*Regio Carpini*,' or region of the hornbeam; while the northern or Ouse district, from its want of timber, must be called '*Regio Nuda*.' Some authors strangely mark the beech as an introduced species, on the authority of Cæsar, who states that Britain produced 'timber of all sorts the same as Gaul, except the *Fagus* and *Abies*.' The *Abies* is now confessed to be the *Pinus Abies*, or silver fir, and not *P. sylvestris*, the Scotch fir, which was formerly, on the same grounds, considered as an introduced species. And it is plain that either the *Fagus* of Cæsar was not the beech, or that Cæsar did not happen to encounter any of our native beech-forests during his short stay in Britain: for it is impossible to doubt the genuine wildness of this species in the west of our county, and still more in the adjacent county of Bucks, which is supposed to take its name from this tree."

C.

Notice of '*A Hand-Book of British Ferns, intended as a Guide and Companion to Fern Culture*.' By THOMAS MOORE, Curator of the Botanic Garden of the Society of Apothecaries.'

THE matter contained in this nice little book had previously appeared, as the author informs us, in the columns of a weekly newspaper, intitled '*The Gardener's and Farmer's Journal*,' and we have subsequently seen it, with some omissions, in another horticultural periodical. The work is very unpretending, adopting, in almost all instances, the modern improvements of Presl, Smith and Newman: the last-named author is used somewhat too freely in the details of structure: wherever figures or descriptions are borrowed the obligation should be scrupulously acknowledged. In instances where the author aims at originality he does not appear to be particularly happy: but of this the reader may judge from the list which follows.

Allosorus crispus. Of this fern two named varieties are thus described:—

"*β. dentatus*; barren fronds—ultimate divisions oblong-oval, the margin sinuate-dentate, feather-veined; fertile fronds—ultimate divisions roundish oblong.

“*γ. linearis* ; barren fronds — ultimate divisions narrow-linear cleft at the apex ; fertile fronds — ultimate divisions oblong.”

Our objection to this may be stated in very few words : such forms of frond as those now for the first time named commonly grow on the same plant with fronds of the normal form : on this principle of naming forms of leaves, how many named varieties might we not make of a mulberry tree !

Lastræa Filix-mas. The curious form of this species figured in Newman’s ‘British Ferns,’ 197, *b*, is named *β. incisa*.

Lastræa spinulosa. The synonyms, as well as the involucre and scale (copied from Newman), are those of one species, while the frond with the densely chaffy stipes is that of another.

Lastræa dilatata. In this species the stipes is represented as sparingly clothed with minute scales, yet the involucre and scale (again copied from Newman) are those of the densely chaffy species, which Roth has called multiflora, and the description favours the idea that Roth’s plant is intended. In the synonymy this species is given without doubt as the *Aspidium dumetorum* of Smith, ‘English Flora,’ iv. 281. But although thus restricted, it is made to contain four named varieties, as under :—

“*α. multiflora* ; fronds ovate-lanceolate, semi-erect ; scales of the stem with a dark centre and diaphanous margin.

“*β. dilatata* ; fronds almost triangular, drooping, dark green ; scales of the stem as in *α*.

“*γ. maculata* ; fronds oblong-ovate ; scales of the stem of an uniform reddish brown colour.

“*δ. collina* ; fronds narrow elongate-lanceolate ; pinnæ very distinct ; scales of the stem as in *α*.”

We must leave this “*dilatata* question” in the hands of our readers : it appears to us rendered more obscure than ever. Can Smith’s *dumetorum* be so comprehensive ?

Polystichum angulare has two named varieties.

“*β. subtripinnatum* ; lower pinnules deeply pinnatifid the basal lobe almost stalked.

“*γ. angustatum* ; pinnules small, narrow, acute.”

Cystopteris fragilis has three named varieties, of which the first and last only are new.

“*α. Dickieana* ; fronds ovate-lanceolate ; pinnæ crowded, overlapping ; pinnules crowded, broad obtuse, very slightly toothed ; sori marginal distinct.

"*β. dentata* ; fronds oblong-lanceolate ; pinnules ovate-obtuse bluntly toothed or rarely pinnatifid ; sori marginal often crowded sometimes confluent.

"*γ. vulgaris* ; fronds lanceolate ; pinnules ovate-acute pinnatifid, cut or serrated ; sori becoming confluent more central than in *β*."

In *Asplenium marinum* we have two named varieties, but the name is the only addition made, the forms of frond being figured by Newman.

"*β. acutum* ; fronds elongate ; pinnæ elongated acute.

"*γ. lobatum* ; fronds elongate ; pinnæ auricled and deeply lobed."

In *Pteris Aquilina* we have two named varieties.

"*α. vera* ; pinnules inferior pinnatifid (sometimes only sinuate) the segments oblong obtuse ; superior undivided.

"*β. integerrima* ; pinnules throughout entire, except occasionally one or two of the lowest on the basal secondary pinnæ slightly lobed."

Our readers will see how easy it would be to multiply names *ad infinitum* on this plan ; but to what good purpose does it tend ?—is our knowledge advanced one iota by such name-giving ?—is the study of ferns rendered more easy ? Is not this nomenclature of fronds carrying varieties to an extreme never intended ? Can a variety be a portion of an individual ? Can it be less than an entire individual ? We leave our readers to frame their own replies. Still we like the little book : it is well calculated to coax the idler into an agreeable improving occupation, the study of Nature in one of her most agreeable moods. And whatever does this has our cordial approbation. No one can stop with this "hand-book." No one can rest satisfied with the information it conveys. It must create a thirst for more satisfactory, more perfect knowledge.

After these gentle criticisms (we would not break a fly upon the wheel), we have great pleasure in turning to that portion of his subject which the author evidently understands, and in citing the results of his practical experience.

Polypodium vulgare. This fern we have always considered a ticklish one under cultivation, but our author says it "is exceedingly well adapted for planting on artificial rock-work, and among rustic work formed of the stumps of old trees. A compost of turfy peat, decayed wood, porous broken bricks and rough charcoal, will be a proper medium for its roots under pot-culture. It is readily increased by dividing the creeping caudex."—p. 21.

“*Polypodium Phegopteris* requires a very abundant supply of moisture both about its roots and fronds: the soil, however, should be well drained. * * * * As a pot-plant it is a very delicate object, and should be planted in well-drained pots of turfy peat soil, mixed with decayed tree leaves, charcoal and sand. In the summer season it grows best in a cold frame, shaded from bright sunshine; and it may be induced to grow in winter by the application of heat, which it stands well.”—p. 24.

Polypodium Dryopteris may be treated like the preceding: it grows much more freely than *Phegopteris* in pots.

Polypodium calcareum. Of this species Mr. Moore’s experience is diametrically at variance with our own: we should describe it as the hardiest of ferns, requiring no peculiarity of soil or situation, regardless alike of scorching sun and London soot, it braves heat and cold, drought and moisture: it is the only species that thoroughly thrives in the adulterated atmosphere of towns. Mr. Moore says it is “somewhat more shy under cultivation than the last. To the turfy peat, which forms a good basis to the compost for ferns, a portion of chalk, limestone, old mortar, or broken freestone, should be added, as well as the broken charcoal and the sand; the pots, too, must be especially well drained, or the plant soon dies.”—p. 28.

Allosorus crispus. “This little fern is a free-growing species under cultivation, and a very elegant ornament to rockwork. * * * It also succeeds remarkably well under pot-culture. When growing in pots it should have a well-drained soil, and there is no better compost for it than a compound of turfy peat, good free loam, broken potsherds, and small lumps of charcoal intimately blended in the proportion of two parts of each of the two former to one part of each of the latter. When planted on rock-work it should be fixed in situations where, while freely supplied with water at the root, all superfluity may soon drain away. It does not especially require shade, although it grows best when shaded, and indeed under artificial culture, the delicate texture for which the ferns are generally so much admired, is favoured by a moderate degree of shade. The potted plants must be kept drier in winter than in summer; in the latter season they ought to be pretty freely supplied; the moisture, however, should never become stagnant about them.”—p. 32.

Woodsia Ilvensis and *W. alpina* “are best cultivated in moderate-sized pots, potted high amongst turfy peat, charcoal, freestone and sand; and kept in a cold frame, which should face the north in the summer season, and should at no time be kept constantly closed up.

Under cultivation they are very impatient of sunshine and stagnant moisture. The plants may be advantageously elevated a little between three small pieces of freestone, the soil being carefully placed about their roots. They must not be kept too damp, especially on the approach of and during the continuance of winter. A shady shelf in a cool greenhouse where there is a free circulation of air, is a good situation in which to preserve them during the dormant season. The tufts should be occasionally divided, the plants being more liable to perish from damping off when they form large masses than when of smaller size.”—p. 37.

Happy the man who has large masses of *Woodsia* to divide !

The species of *Lastræa* are so easily cultivated that no kind of care is required, unless it be with *Oreopteris*, which has a great partiality for the fresh air of woods and mountains, and cannot bear a clinker rockery, and utterly abhors the imprisonment of a Wardian case.

Polystichum Lonchitis “may be kept in good health if potted firmly in a soil of sandy loam, which should be tolerably well drained. The best situation in which to keep it is a cool, moist frame, in which it will grow with tolerable vigour. Fully exposed on rockwork, it will rarely be found to have a prolonged existence, unless the circumstances of its natural localities can be tolerably simulated.”—p. 71.

The fern thrives remarkably in cultivation in the Botanic Gardens of Ireland, no care seems required to bring it to a degree of perfection that it rarely reaches in a state of nature. Passing over a number of species, concerning which we find nothing that we can quote with advantage, we arrive at

Asplenium marinum. “No one, as far as I am aware, has been successful in cultivating this plant in the open air; exposed unsheltered to our climate it perishes. Whether this be the consequence of its requiring warmth and shelter, as indicated by its foreign habitats, or the peculiar saline influences of the sea, as its almost universal position in a wild state may point out, I am unable to say; but probably it is constitutionally tender, since it is found to grow freely enough, in fact, to attain great luxuriance, in a shady position in the ordinary warm, moist atmosphere of a plant-stove. I find it, however, to grow very readily in a common frame kept closed. It is very difficult to establish when newly moved from its native rocks, the roots being of necessity much injured in the process of removal; but when once established and placed in a sheltered position, it will grow freely and may be increased without difficulty by the ordinary process of division. It delights in shade, and when grown in pots should have

a compost of turfy peat, silver sand, and broken sandstone and charcoal. Planted in shady rock-work, in a greenhouse, or plant-stove, it soon becomes vigorous, and from its evergreen habit is at all times ornamental. When cultivated in a common frame it should have some protection against cold in winter; and is in fact best placed with other tender kinds beneath a hand-glass kept closed in the greenhouse."—p. 109.

Trichomanes speciosum. "This fern requires a damp, calm atmosphere, without which it will not thrive; hence all attempts to cultivate it artificially other than under close confinement have failed. It likes warmth, and thrives admirably under a glass in a shady part of a plant-stove or greenhouse. Mr. Smith, who has grown it very successfully, thus explains how it and the *Hymenophyllums* should be planted: 'Procure some porous freestone (if in one mass so much the better) large enough to fit the mouth of the pot in which the plant is to be grown; this should be a good sized one, as the plants should be seldom disturbed. Fill the pot so far full of broken crocks for drainage as to admit of the sandstone lying firmly on the mouth of the pot, and on a level with or rather above the rim. Then strew a little silver sand over the stone, and arrange the caudex of the plant neatly on the surface, strew a little more sand over this and follow by a good watering. If necessary the plant must be supported in a firm position by means of some small stakes, judiciously placed. All this must be done with great care, for neither the plant nor the sand must be disturbed. Next place a hand or bell-glass tightly over the plant, and remove it to a shady place, either in the stove or greenhouse or sitting-room, but away from sunshine. After this all that is required is careful and rather abundant watering, sufficient, at least, to maintain a constant dampness about the plant.'"—p. 142.

The same treatment is recommended for both species of *Hymenophyllum*.

And here we must close our extracts, finding nothing in the treatment of the remaining species to which we can invite the reader's attention. From the specimens we have given our readers will conclude that the author is a greater adept in horticulture than in botany, and that he would have acted more wisely in adopting the botanical portion of his work from other authors, say the fifth edition of the 'British Flora,' the second of Babington's 'Manual,' or the second of 'British Ferns;' in either case the confusion always incidental to an altered nomenclature would have been avoided.

O. P. Q.

Notice of 'The Elements of Botany. By M. ADRIEN DE JUSSIEU, translated by JAMES HEWETSON WILSON, F.L.S., F.R.B.S., &c., &c.' London: Van Voorst, Paternoster Row, 1849.

A VERY good book very well translated.

At a period when elementary works on Zoology and Botany are more abundant than students, and are for the most part the handiwork of those who have never advanced beyond the elements of the respective sciences, it is very refreshing to be presented with an introductory work by one who, like his great namesakes, has climbed the tree of botanical knowledge to its topmost bough. It is somewhat remarkable that France should have produced three such distinguished botanists of one name, and we believe of one family. The eldest, Bernard de Jussieu, was one of those whose pleasure lies in acquiring rather than in diffusing knowledge. His comprehensive views of system, shared, we must recollect, by the great Linnæus, were rather depicted than described. In the gardens of the Trianon he drew a map of that method which has since received his name and the approbation of the scientific world. It remained for Antoine Laurent de Jussieu to make the world acquainted with the views of his predecessor. This gifted man began his labours by editing the manuscript catalogue of the plants as arranged by Bernard at the Trianon, so that the exact state of botanical knowledge at that period is registered in a manner that can never be obliterated. Antoine's own labours followed, and by a comparison of these with the catalogue in question, we see at a glance the exact share of each in that system which has almost universally received the title of *natural*. On this, as on all questions worked out by a plurality of minds, the disciples have contended for differences which the teachers never enforced, have introduced antagonism where all might have been harmoniously blended. The numerical system of Linnæus has its foundation in nature equally with the more comprehensive system of Jussieu: witness the ternary flowers of the endogens: the error was in making number too exclusively the guide. Number is an invaluable assistant, but a most arbitrary master.

The following extract from the work before us will be read with interest.

"A. L. de Jussieu admits, like Adanson, that the examination of all the parts of a plant is necessary for its classification, but, whilst he was pursuing this complete examination, he did not endeavour to

deduce the order of the genera theoretically, in order to group them into families, he imitated the manner in which the genera themselves were formed. Botanists, struck with the complete and constant resemblance of certain individuals, had collected them into species; then, according to an equally constant resemblance, but much less complete, had collected the species into genera. The characteristics, which may vary in the same species, will depend on causes not innate in the plant, such as its height, the hardness or softness of its wood, certain modifications of shape and colour, &c., which change with the soil, the climate, and other purely accidental influences. The specific characteristics, on the contrary (those which ought to be presented by every individual, that is connected with others in forming a certain species, whatever may be the circumstances in which it is placed), will be inherent in the very nature of the plant. Amongst these characteristics there are some more important than others, less subject to vary in the different individuals; these, being always found in a certain number of species, impress upon them a resemblance sufficiently striking to allow us to constitute a genus. These will therefore have more value on account of their generality than the specific, and the specific than the individual. But how can we appreciate these different values? Nature herself has indicated to the observer the species and several of the genera by the points of resemblance with which she marks certain vegetables; beyond these genera this conducting thread was wanting, since all botanists, agreeing in almost everything up to this point, differed after they reached it, and followed each a separate route. There are, however, several large groups of vegetables connected with one another by characteristics of resemblance so evident, that they cannot escape the notice of the most casual observer, much less of a botanist. Besides these points of resemblance, common to every species of one of these groups, there are some which are only common to a certain number among them; so that it may be subdivided into a large number of secondary groups. These had been recognized as genera by botanists. There were, therefore, already a few collections of genera evidently more similar to one another than they were to those of any other group, or, in other terms, some families undeniably natural. Jussieu thought that this was the key of the natural method, since, by comparing the characteristics of one of these families with those of the genera which compose it, he would obtain the relation of one to the other; since, by comparing several of them with one another he would see what characteristics, common to all the plants of the

family, varied in such a one and such another; since he would thus arrive at the value of each characteristic, and this value, once determined by means of these groups so clearly arranged by Nature herself, could in its turn be applied to the determination of those on which she has not so clearly imprinted this family likeness, and which were the unknown quantities in the great problem. He chose, therefore, seven families universally admitted; those, which are known under the names of Gramineæ (*Graminées*), Liliaceæ (*Liliacées*), Labiatae (*Labiées*), Compositæ (*Composées*), Umbelliferæ (*Umbellifères*), Cruciferae (*Crucifères*), and Leguminosæ (*Légumineuses*). He discovered that the structure of the embryo is identical in all the plants of one of these families; that it is Monocotyledonous in the Gramineæ and in the Liliaceæ, Dicotyledonous in the five others; that the structure of the seed is also identical; the Monocotyledonous embryo is placed in the axis of a fleshy perisperm in the Liliaceæ, on the side of a farinaceous perisperm in the Gramineæ; the Dicotyledonous embryo, at the summit of a hard and horny perisperm in the Umbelliferæ, without a perisperm in the three others; that the stamens, which may vary in their number in the same family, the Gramineæ, for instance, do not generally vary in the method of their insertion, Hypogynous in the Gramineæ and in the Cruciferae; on the corolla in the Labiatae and the Compositæ; on an epigynous disk in the Umbelliferæ. He thus obtained the value of certain characteristics which would not vary in the same natural family. But, less in importance than these, there were others more variable, which he tried to appreciate in the same way, either by the study of other families formed by Nature herself, or in those which he formed by applying these first rules and several others, also founded on his observations. We cannot here enter into the details of this long and arduous undertaking, from which resulted a hundred families containing all the plants known at that time.”—p. 580. K.

Reply to the Editorial Observations on the Robertsonian Saxifrages, at page 451, &c. By CHARLES CARDALE BABINGTON, Esq., M.A., F.L.S., &c.

IN reply to the remarks of “C.” in the ‘Phytologist’ (Phytol. iii. 451, 452), I wish to state that there has never been any desire on my part to avoid the acknowledgment of a “mistake” of mine, which indeed was not a mistake at the time of its publication. As the new

facts observed by Mr. Andrews had been published in the report of the meeting of the London Botanical Society, of April 4, 1846 (Phytol. ii. 537; Gard. Chron. 1846, p. 254), at which he proved, by the exhibition of a series of specimens, that "the fact of the Hibernian forms *including* those of the Pyrenees is placed beyond all doubt or cavil," I never suspected that I was bound to write a paper upon the subject, nor that any charge could be brought against me, even by your correspondent "C.", for not going out of my way to publish those facts which Mr. Andrews was so well qualified to publish himself, and indeed had published. I supposed that all the interest of the subject was at an end after Mr. Andrews' discovery of the Pyrenean forms of the Robertsonian Saxifrages in Ireland, as that interest consisted in their supposed absence.

In answer to a letter from me, I am informed by Dr. Harvey that Mr. Andrews thinks that I prevented the publication of part of his remarks in the Reports of the British Association, and also of a paper sent to the 'Annals of Natural History' by him.

With the publication of the former I had nothing to do, as the local officers of the Association are not consulted upon such matters, and have no hand even in transmitting the papers, communicated to the sections, to head quarters. The report was probably drawn up by one of the Secretaries of the section, to whom abstracts of papers ought to be given by their authors. Had that been done in this case, the report would have been such as Mr. Andrews wished.

Concerning the paper sent to be inserted in the Annals I know nothing, as it is not usual for the Editors of that Journal to submit papers, reflecting upon, or contradicting the statements of, one of their own body, to the person upon whom the reflections are made. I therefore did not see it, and know nothing about it. I feel certain that a *short* statement would have been printed.

After what had appeared in the 'Phytologist' (Phytol. ii. 537), I thought that I had done all that was requisite by adding, in the 2nd edition of my Manual (p. 126), which was published in 1847, to the account of *Saxifraga umbrosa* the words "All the forms are found in the west of Ireland," thus including amongst those found in Ireland the *α. crenata*, which was stated in the 1st edition to be the Pyrenean plant.

What I stated "so positively" in the Annals was, that having had occasion to re-examine the Irish Saxifrages, I had been "greatly struck by the uniform difference which exists between each of them and the corresponding plant of the Pyrenees." In this, all that

requires alteration even now, is the substitution of the word "usual" for "uniform;" for I still think that the *usual* Irish forms differ from the *usual* Pyrenean forms of the plants.

I am truly sorry that any omission on my part should have appeared like a neglect of Mr. Andrews' observations, and am not surprised at his feeling sore when he supposed that it was intentional.

The existence of the Pyrenean forms in Ireland has now, at any rate, been made sufficiently public by appearing in two of the Botanical Journals, in addition to the report referred to above.

CHARLES C. BABINGTON.

St. John's College, Cambridge,
March, 1849.

A few Remarks on the "Proof" of C. C. Babington's "Error" respecting the Specific Distinctness of Saxifraga Geum, elegans, hirsuta, &c., &c. By JAMES BACKHOUSE, JUN., Esq.

WHILST the information given by "C." in the last No. of the 'Phytologist,' upon the Saxifrages of the umbrosa group in Ireland, cannot be regarded as otherwise than interesting and important, inasmuch as specimens have been gathered, seeds collected, and plants cultivated from both Ireland and the Pyrenees in abundance; yet the decision which "C." seems to have arrived at, that there is (or has been) an amount of evidence given sufficient to overthrow the specific distinction between umbrosa, elegans, hirsuta, and Geum which many persons believe to exist; and even to *require* from a careful and accurate observer, like C. C. Babington, as a "scientific, if not a moral, obligation," that he should retract his statements and declare his error, seems in my opinion entirely devoid of sufficient foundation and authority. I cannot say that the *probabilites* do not appear to be on the side of those who think these Saxifrages varying forms of one species; but before any *certain* conclusion is arrived at, we must be in possession of far more evidence than has yet been brought forward in the public journals.

The information respecting them actually ascertained, seems to be, that *every shade* of difference between the extreme forms (which may be considered as represented in *S. umbrosa*, var. *serratifolia*, and *S. Geum*, setting aside the "new one?") is found in a wild state, not only in Ireland, but also in the Pyrenees; and that seeds have been

collected, the plants raised from which have likewise passed completely one into the other; also that under cultivation the same variable characters are exhibited.

These are important points; but now the question presents itself, **WHENCE ARISES THIS INFINITE VARIETY?**

It may be that there is *one* species only, which, when far removed from others and every possibility of hybridization, has a natural tendency "to sport" in the seedlings, giving rise to an endless variety.

On the other hand it may be that there are *three or four* species, or more, forming a group, which are readily affected by hybridization, the seedlings from any one of which may, under such influence, show every imaginable intermediate state.*

Or it may be that there are *many* species, the individuals of which have a tendency, without hybridization, to vary and "sport" from seed; the seedling from one species so closely approximating the seedling from another species, as scarcely to be distinguishable. It is only necessary to refer those who have examined extreme forms of *Polystichum lobatum*, var. (?) *lonchitidioides*, to its close resemblance to *P. Lonchitis*; and yet it is known that the former under cultivation assumes the common form of *P. lobatum*, while on the other hand *P. Lonchitis* retains its character, or quickly *regains* it, where the original plant has taken the form of *P. lobatum* "*lonchitidioides*," by having grown in a shaded place.

Till these intricate questions are settled, who can be justified in saying that such are species or such are only varieties, or much more in saying that there is a "moral," or even "scientific, obligation" for a person holding *one* view to declare his error?

Because seeds procured from wild plants in Ireland or the Pyrenees produce infinite variety, we have no proof against the existence of several species: and because intermediate forms are found abundantly in the Pyrenees *as well as* in Ireland, it may be answered by way of argument, that *like causes under like circumstances produce like effects*.

Until extreme forms have been cultivated, *singly and far apart from others of the group*, for a season or two, and seedlings have been raised from these, which not only vary, but actually produce the opposite extreme, it appears to me that no one can say with certainty that there are not several species which have a tendency "to sport,"

* As in the case of *Pyrus Aria* and *P. Aucuparia*, where by hybridization every intermediate form has been produced.

and whose seedlings closely approximate. If they all be variations from *one* species, there is every probability that in two or three generations (successively cultivated on the solitary system) a general tendency will be manifested to return to one form. When we have satisfied our minds as to their specific distinctness or the contrary, we may try what freaks Nature will play under a regular process of hybridization.

The investigation must necessarily be tedious, and the examiner liable to many failures; but this *must not* discourage us.

J. BACKHOUSE, JUN.

York, March 10, 1849.

List of Plants naturalized near Brechin, Forfarshire, observed in
1848. By WILLIAM ANDERSON, Esq.

THE following is a list of naturalized plants that flowered, last season, in woods near Brechin Castle, Forfarshire.

Meconopsis Cambrica

Chelidonium majus

Geranium phæum

Valeriana pyrenaica

Doronicum pardalianches

Polygonum Bistorta

Rumex alpina

The above are either escapes or outcasts from the garden.

Saponaria officinalis, var. with double flowers, grows by the side of a field a little above the service bridge to Brechin Castle. A cottage stood near the spot upwards of thirty years ago; hence the origin of the plant in this station. Flowered last October.

I cannot leave the subject of Brechin-Castle Botany without noticing further on the *Tulipa sylvestris*. In following up the remark made by me in the 'Flora of Forfarshire,' I may now add my firm belief that this plant is not indigenous in the station near Brechin Castle, from the circumstance of its being found only near the site of the old garden (and to all appearance where part of the mould has been deposited), and along with it the *Tulipa*.

I am surprised at the silence that has hitherto prevailed regarding this plant (at least in this station), while others perhaps less interest-

ing (in point of beauty at least) have received much attention. Don and others visited the above station at a time when the circumstance was as evident as it is now.

W. ANDERSON.

Temstall, Sittingbourne, Kent,

February 23, 1849.

Notes on certain British Plants for distribution by the Botanical Society of London, in 1849. By HEWETT C. WATSON, Esq.

AGAIN, as in several past years, I have to request that the Editor of the 'Phytologist' will grant the use of his widely-circulated journal, as the best medium for conveying to Members of the Botanical Society of London, some explanations about certain of the specimens which have been lately contributed to the Society, for distribution during the present year.

While conveying these explanatory notes on the specimens, I wish to avail myself of the opportunity thus afforded, for mentioning that the present will probably be the last year in which I shall myself in any way intermeddle with the distribution of British specimens from Bedford Street; and even this year I do so to a less extent than usual. I have come to the determination of withdrawing from active interference in future, mainly in consequence of not having found a *sufficiently systematic* cooperation with my own efforts, fully to ensure the beneficial results which had been anticipated as the fruits of much time and exertion bestowed by myself on the management of the distributions during the past five or six years; partly, also, from finding practical differences of opinion between myself and others, as to the *course* which is requisite for efficiently continuing the distributions on the large scale to which they have gradually attained by the increase of members, &c.

I am desirous of making this statement here, where it may be likely to catch the eyes of members, with the object of thus publicly releasing myself from all individual and personal responsibility in regard to the future management of the Botanical Society of London. This could not be the case while it was known to many of the members, and even publicly avowed by myself (see 'Phytologist,' ii. 1007), that I was really taking an active and extensive participation in most of the matters connected with the Society's distributions of specimens,

although nominally not holding any official position in the Society, as a Member of Council or otherwise. So long as that was the case, the contributors would still very justly hold me one among the persons who were responsible to them for the good and efficient management of the Society, in the principal department of its operations. But that responsibility now ceases.

The Botanical Society of London has been gradually brought to a state of great practical efficiency, as a centre and medium for exchanges of specimens among its members. It will require far less exertion of hand and head to keep it on the high level which it has attained, than was required to raise the Society to its present state, from the very low place which it held in public estimation and usefulness some six or eight years ago. Almost all the needful preliminary work of planning and preparing, in both the intellectual and the manual sense, has been completed, and has become converted almost into a matter of routine. So that it would be a very poor compliment, indeed, to the numerous other members, on and off the staff of office-bearers in London, were it now to be supposed that the operations of the Society cannot still be carried on steadily, usefully, and successfully, without the watchful intermeddling of a single individual who resolves to withdraw therefrom. At the same time that such a view is expressed, I am very far from confessing a low self-estimate of the consequences of my own past interference. On the contrary, I believe that the Botanical Society of London, in all likelihood, would have been utterly extinct before this date, if that interference had not taken place. True, my own efforts would probably have proved unavailing without the unwearied exertions of my very estimable friend, the Secretary of the Society. But equally so, I think, the latter might have failed without the former. And the cooperation of many competent botanists, as contributors, was quite as necessary to success.

My individual responsibility in the distributions of British specimens for the current year, is limited. I have very rapidly looked over the chief part of those sent in by contributors; and in so doing I have removed two lots or portions of them from the rest; namely, first, those which I believed to be mis-labelled though errors of nomenclature; secondly, those which it seemed desirable to send out to the members, although they might not be specially applied for as desiderata. One large parcel, that of Dr. Mateer, I refused to look at, on account of the bad condition of the specimens, in regard to their pressing and drying, although otherwise well selected. As a general

rule, the large parcels are found to contain the worst specimens; and yet there is a brilliant exception to this rule, in the parcels from Mr. French, which are both very good and very numerous in their contents.

The number of specimens which it is necessary to place in the category of mis-labelled plants, I am happy to say, is yearly decreasing; and the errors are chiefly found in the parcels of recently-admitted members, or of those botanists who contribute without being members of the Society. Moreover, the false labels now usually belong to allied species which have been confused together by authors, or to forms not always recognized as species. For example, it will excite no surprise that specimens of *Prunus avium* should have been labelled with the name of *Prunus Cerasus*, and by a good botanist, or that the specific names of the *Lastræas* should have been crossed and mis-applied.

In the latter of my two categories, I included such varieties and recently-discovered species as are not yet included in the 'London Catalogue of British Plants,' in or by which the members mark their desiderata; as also, any other plants of doubtful name, or requiring some special explanation. It is for the purpose of giving an explanatory notice respecting some of the specimens belonging to this second lot or selection, that I now seek to address the members of the Botanical Society, through the pages of the 'Phytologist.' I shall myself put up these specimens into packets, as far as their numbers will extend, and mark the several packets 1, 2, 3, &c., in a series up to 50 or 60, according to the fullness of their contents. The distributors in London will determine with whom, of the many contributors in 1848-9, the greater and earlier claims for them may rest. The *Anacharis Alsinastrum* and recently-distinguished species of *Filago* will be the only novelties, of which some duplicates will still remain over and above the fifty or sixty packets.

Filago canescens (Jord.), *F. apiculata* (G. E. Sm.), and *F. spatulata* (Presl.). All three of these having been heretofore included together, under the collective or general name of *Filago germanica*, I gathered a copious supply of each, in my own neighbourhood, in Surrey, in order that their distinctions should be rendered more clear and satisfactory, through all three being presented to the eye at once, with correct labels. Mr. E. G. Varenne also sent many examples of *F. apiculata*, collected at Kelvedon, in Essex; and Mr. J. W. Salter added a few others, labelled from Redneck Heath, Thetford, on the authority of Mr. C. C. Babington. To Mr. G. S. Gibson the Society was indebted for a large supply of *F. Jussii* (*Coss.*), which is syno-

nymous with the *F. spatulata*. Among the specimens of *F. apiculata* (*F. lutescens*, *Jord.*) from the various localities, there is a close similarity of general habit. This is less the case with those of *F. spatulata*. The few of the latter species which I collected in a field of oats near Chessington Church, Surrey, are remarkable for their more upright and more regularly dichotomous growth, with narrower leaves. Others from a wheat-field, near Walton-on-Thames, in the same county, have a very spreading ramification, the branches being often horizontal or even deflexed, and the leaves are in general much broader. The specimens from Mr. Gibson are intermediate between these two forms, and approximate more to *F. canescens* (the ordinary *F. germanica* of authors) in their mode of branching. The distinguishing characters of the three apparent species may be found in the 'Phytologist,' iii. 314.

Anacharis Alsinastrum (Bab.). Only few specimens of this interesting plant could be distributed in the spring of last year. It was, however, mentioned in my notes (Phytol. ii. 41) under name of *Udora verticillata*. Since that time it has become familiar to English botanists by name of *Anacharis*, although many of them may be still in want of specimens; which can now be sent to all members of the Society, from the liberal supply furnished by the Rev. A. Bloxam, collected in the Reservoirs, Foxton Locks, near Market Harborough, Leicestershire. The long and very slender stalk which raises the flower above the surface, while the rest of the plant is wholly in the water, appears so weak or fragile that many of the specimens will be likely to reach their destination with the flowers broken off. Of course the *Anacharis* could not be introduced into the second edition of the 'London Catalogue,' which had been just printed when its discovery was announced; and it may therefore be worth while to mention that it will form a third genus under the order of Hydrocharidaceæ. It is probable that few young botanists would unite the *Anacharis*, *Stratiotes*, and *Hydrocharis* into one order, if they undertook to group plants according to general resemblance; yet the exigencies of the so-called Natural System require this; the system being, in fact, arbitrary and conventional in many of its details, although truly founded upon natural similitudes. Thus, even in the hands of that clever systematist, Dr. Lindley, it is more forced and arbitrary in its details, than with most other technical classifiers.

Melilotus arvensis (Wallr.). The first announcement of this species, as British, in the 'Phytologist,' iii. 344, was made on the authority of specimens communicated to the Botanical Society of London, by Mr.

G. S. Gibson; and to the same observant and liberal botanist the Society is now indebted for some duplicate specimens. By another season, we may hope, Mr. Gibson will be able to supply the species in larger quantity, and that it will be discovered by other of our lynx-eyed botanists of the present age. There seems much probability that *M. arvensis* has hitherto been passed by, as *M. officinalis*; from which latter it is distinguishable by the upper suture of the pod being glabrous, not pubescent as in *M. officinalis*. The flowers of Mr. Gibson's specimens are yellow, which is not always the case, according to continental authors. The relative length of the petals is relied upon for a diagnostic character between *M. arvensis* and *M. alba* or *vulgaris*; the wings being longer than the keel, in the former, and about equal to the standard; while, in the latter, the wings are stated to be nearly equal to the keel, and shorter than the standard. This is a small character, but apparently a correct one. It may be recommended to botanists that they should not pass by any locality of a *Melilotus*, this year, without examining specimens; three apparent species being now recognized in England, all of which may have formerly been considered as *M. officinalis*.

Agrostis (Apera) interrupta (Linn.). Specimens of this recent addition to the list of English plants, have been sent from the neighbourhood of Thetford, in Norfolk, by Mr. G. S. Gibson, and the Rev. W. W. Newbould; as likewise by Mr. J. W. Salter, who received them from Mr. C. C. Babington. Those communicated by Mr. Newbould, not having been severally labelled by the donor, have only the Society's general printed form without special locality, which is that of "Redneck Heath, near Thetford." As with two of the preceding novelties, this likewise should probably be deemed a newly distinguished, rather than a newly discovered, species with us; for there can be little doubt that it has been seen before, and regarded as *Agrostis Spica-venti*, a species which it resembles very closely, and with which it has been united by some botanists of the continent. It is to be distinguished from the *Spica-venti* by a closer or narrower panicle, and broad sub-oval anthers; the better known species having linear-oblong anthers, and a wider panicle.

Arenaria rubra β . *media* (Bab.). Under this name, Mr. F. J. A. Hort sends a few examples of a sea-side plant, which the same gentleman recorded in the 'Phytologist' for November last (iii. 321). It is the *Arenaria marina* of various English botanists; but differs from the plant figured as such in Eng. Bot., by the absence of a membranous margin or wing to the seeds. Its thick and perennial

root brings it near to *Arenaria macrorhiza* (Req.), from which, perhaps, it may prove not to be specifically distinct; while the same character will separate it from *A. rubra*.

Geranium striatum (Linn.). The name of this species was inadvertently omitted from the "Excluded Species" of the 'London Catalogue,' where it might have been placed on the ground of the plant having become in some measure naturalized in Cornwall. Mr. James Ward sends some specimens from Aske Wood, near Richmond, in Yorkshire, and labels them as "naturalized" in that locality, a circumstance which may be held to increase its claims to be recorded in our lists of established aliens.

Trifolium elegans (Sav.). This clover was mentioned in my notes on the Botanical Society's distributions of last year (Phytol. iii. 47), as having occurred in two parishes in Surrey. Last autumn it was found again, in a third locality,—a field of purple clover, in the parish of Chessington, Surrey, very near the Church. Only two specimens were found there, and consequently I could not obtain any for distribution. But having removed a root from the Claygate locality into my garden, in 1847, I was thus enabled to dry a good supply last summer, with a view of making the species generally known to botanists, and thus enabling them to detect it in other places, if curious to do so. As it appears to be imported and sown with foreign seeds of the common meadow clover, and is soon again destroyed by the ploughing of the ground for succession crops of grain, it can be regarded only as an alien of uncertain occurrence and duration. And it will seldom be detected even in fields where it grows, unless sought by pathways, or after the first mowing of the crop, when it is less concealed by the taller meadow clover.

Alchemilla conjuncta (Bab.). The specimens of this, also, are from my garden; dried and distributed for the same purpose of rendering it familiar to botanists, in order that they may look for it in the localities of *A. alpina*, and may thus prove it to be (if it be) truly a British species; the evidence for which, as yet, appears to me to be extremely unsatisfactory, although four different localities have been stated for the plant. I think Mr. Babington correct in describing it as a true species, distinct from *A. alpina*; as it possesses well-marked characters, which are continued by seeds, without any gradual transition to *A. alpina*; though the latter does occasionally exhibit a distant approach to *A. conjuncta*, by the adhesion of its leaflets at their base, which is always the case in young seedlings, though disappearing with age.

Cerastium nigrescens (Edmondst.). Here, again, I distribute garden-grown specimens, raised from seeds of the Shetland plant. In this case I do so, because the chance of obtaining wild examples from the single and remote locality on record, is very slight. These garden specimens still closely resemble the wild plant of Shetland, in their almost orbicular leaves and their dark tint; but I have seen a plant which goes far to connect the *C. nigrescens* of Shetland with the *C. latifolium* of the Scottish Highlands; and which had sprung up in my garden, in a situation where it might have been the offspring of either, and I cannot even guess of which of them satisfactorily.

Viola flavicornis (Sm. Herb.). Mr. Sansom has again sent a supply of this *Viola* from New Brighton, on the coast of Cheshire; and I would refer to the remarks of last year, in regard to the specimens from that locality, in *Phytol.* iii. 47. Mr. Varenne also sends the same species (as it appears to me) labelled "*Viola lactea*, Sm.," from Tiptree Heath, Essex. And other examples from myself, well corresponding with those from Essex, will be found accompanying those from Mr. Sansom and Mr. Varenne, for sake of comparison. My own labels bear a reference to the '*Phytologist*' of 1849, instead of locality; the specimens being plants from my garden, which had sprung self-sown about wild roots transplanted into the garden. I have labelled them "*Surrey Violet*," because that name has been used by me repeatedly in the '*Phytologist*.' The late Mr. Forster referred the "*Surrey Violet*" to Smith's *V. lactea*; and I quite concur in regarding it as identical with the species so named in Smith's own herbarium. Still, it appears to be exactly the same thing with Reichenbach's 4501 (*ericetorum*, *lucorum*, *sabulosa*), to which (in the form or variety *sabulosa*) Reichenbach himself referred Smith's *V. flavicornis*. The *two species* which we possess in England are given under *three names* in Babington's Manual, but I think that the following is the solution of their difficulty; that is, a solution from Nature, not from books.

1. First species, *V. sylvatica* (Bab. Man.), is the ordinary hedgebank and coppice plant, called *V. canina* by ninety-nine in the hundred English botanists, including Smith, Hooker, &c.
2. Second species, *V. lactea* (Sm. Herb.), is the "*Surrey Violet*" above mentioned, and the same with Mr. Varenne's plant from Tiptree Heath. Nor can I see how to distinguish it specifically from Mr. Sansom's Cheshire specimens. If the plant figured in '*English Botany*,' as *V. lactea*, be the same species with the specimens preserved in Smith's herbarium,

it is rather an extreme form in the length and narrowness of its leaves.

3. Under "*V. canina* (L.)" of his Manual Mr. Babington has united (confused, I should rather say) small specimens of the "First species" with the broader or more cordate-leaved forms of the "Second species" above indicated. I am perfectly certain, after several years' observation and cultivation of the plants, that the confusion here noted does occur in the 'Manual of British Botany.' But I cannot confidently assert that *only* two species of this group are to be found in England: it may be that three do exist with us; although, as *natural* species, they will still not correspond with the three *book* species of the Manual.

Mentha rotundifolia (Linn.). Mr. E. G. Varenne sends some specimens thus labelled, from a ditch, Messing, Essex. I should myself have labelled them, not without some degree of doubt, as *M. sylvestris*. They show one of those intermediate forms which render absolute distinction so difficult between the two species mentioned, and which have induced some botanists to suspect "that they may be states of one and the same species," as recently remarked (Phytol. iii. 440) by Dr. Bromfield. As usual with the specimens from Mr. Varenne, they are well dried and well labelled, exactly what labels and specimens should be when sent to the Botanical Society for distribution. And the same compliment might be truthfully extended to those of Mr. Taylor, Mr. Salmon, Mr. Barham, and, indeed, many other members now.

Tormentilla reptans? I should be glad to have the opinion of botanists respecting the correctness of this name. During several years I have examined the wild plants of *Potentilla reptans* and *Tormentilla officinalis*, under various conditions of soil and situation, in the vain hope of satisfactorily identifying the *Tormentilla reptans* with one or other of them. I can still reach only the apparent conclusion, that varieties of each may pass for *T. reptans*; being those intended under the names of "*nemoralis*" and "*pseudo-nemoralis*" in the 'London Catalogue,' under the genus *Potentilla*. I consider the specimens now sent out (if not a distinct species, which seems less probable) to be a variety of *Potentilla Tormentilla* (*Tormentilla officinalis*), although the flowers are sometimes five-petalled, and the stems somewhat creeping. I dried forty specimens, the whole of them from one plant, and therefore the radical leaves are wanting on nearly all of them.

Centaurea nigra, radiate varieties. I have dried a few specimens of two varieties of *C. nigra*, which grow very sparingly in my own neighbourhood. In the one which is labelled as "*C. nigra, var. radiata*," many of the outer florets, two, or even three rows, are longer than the rest, giving to the flower-head a semi-double, rather than a truly radiate appearance. This variety occurs on the borders of fields, single plants here and there, intermingled with the ordinary *C. nigra*, from which it differs only in the slight peculiarity mentioned. In the other variety or species a few of the outer florets, usually a single row, are very much longer than the rest, giving quite a radiate appearance to the flower-head. This variety occurs by road-sides and on hedge-banks, not by single plants only, but several in a locality, scattered chiefly about the borders of coppices, where the soil is very sandy. I have labelled it "*C. nigrescens*," although the specimens have not the other character given to that alleged species, namely, the separation of the two or three innermost rows of involucreal appendages from the rest; while those of the other less radiate form do show that character in some degree. But the character is utterly worthless as a distinction; for I have seen it well marked in living plants of the ordinary *C. nigra*, totally rayless; and it can be produced by the process of pressing the specimens. I may observe here, while alluding to the *Centaureæ*, that *C. Jacea* is a common continental species, to be seen in every collection of European plants; and that the plant of the Belfast locality was the true species, unless I mis-remember the specimen in Smith's herbarium. All the English and Scottish specimens, which I have seen labelled as *C. Jacea*, belonged to *C. nigrescens*.

Various. None of the other plants seem to require special notice or explanation. Mr. Bentall sends some neat little specimens of *Lathyrus Aphaca*, in an early stage of growth, in order to show the true leaves, which are replaced by the enlarged stipules in the more advanced growth. By the by, if any recommendation of 'Bentall's drying paper' were still required, the beautiful condition of Mr. Thomas Bentall's specimens would well furnish this. Mr. Ward sends the radiate form of *Bidens cernua*, from Bolton-on-Swale, near Richmond, Yorkshire. Mr. Moore sends some slight varieties of ferns. Dr. Steele sends an Albino variety of *Euphrasia Odontites*, with white flowers and pale green stems. But the labels of these and some other things will sufficiently explain what they are. They are distributed with the new and dubious species, because they cannot be

obtained in the ordinary routine of applying for desiderata by checking their names in a 'London Catalogue.'

Error. Mr. Dennes informs me that through some mischance a part of the labels written for *Sium latifolium*, in 1847-8, were attached to specimens of *Cicuta virosa*. Those members who received specimens of the former, according to labels, should make sure that they have not got the rarer *Cicuta* instead. I think the specimens were from Norfolk.

Foreign Specimens. In concluding my notes on the Society's distribution of British plants in the the current year, I may append a recommendation that any of the members who desire foreign plants, European or exotic, should apply to me by post letter at an early date. Hitherto the foreign specimens have been labelled and distributed almost solely by myself. But I fear this must be the last year of my doing that troublesome work. And if I judge of the future by the past, few members will get any foreign plants after I cease to look to them. I should, however, observe that a year or a year and a half ago, Mr. Henfrey commenced to label a numerous and beautifully dried collection of United States plants; but I am not aware that any of these have yet been distributed to members, though many of them have been labelled by Mr. Henfrey for that purpose. Like many other specimens, these Americans remained for several years in the Society's rooms, unseen and unuseful. Indeed, it appears to have been the rule of conduct in Bedford Street to shut up foreign specimens in boxes and cupboards, useless to every body, until destroyed by insects. I have myself rescued and distributed a good number of them; but still many remain, doomed to destruction by vermin, without being of the smallest use to any body. A very large mass of foreign specimens has also been set aside, and is now stowed away in cupboards, ostensibly in order to constitute a general herbarium. But these are totally inaccessible for use and reference, and will probably be destroyed by insects in the lapse of time. The Botanical Society of London cannot command the pecuniary funds, or the skilled labour, which would be required to make a general herbarium of reference; and yet the exchanges and distributions have been much impeded by the unwise attempts to effect this and other objects, which there is neither money nor resident knowledge adequate to accomplish. I should recommend some five and twenty or fifty English botanists, really and selectly such, to form themselves into an exchanging club, apart from both Botanical Societies; eschewing herbaria, libraries, meetings for discussion, and such like

local taxes on time and purse, which only interfere with the one useful and general object mentioned. *Tempora mutantur*: the object for which scientific societies used to be instituted are now better effected by periodical literature, by travelling, by correspondence, and by exchanges. Collective libraries are still important; but we *have* one for botany at the Linnean Society, and *cannot* have one at the Botanical Society of London.

HEWETT C. WATSON.

Thames Ditton, February, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, March 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

A donation of British plants was announced from Mr. T. Westcombe.

Mr. E. Berry, of Barnsley, Yorkshire, was elected a corresponding member.

A paper was read from Mr. Arthur Henfrey, containing some remarks on the "Discrimination of Species." While estimating highly the value of minute inquiry into the conditions presented by plants, the author could not overlook the inconveniences that arise from hastily giving a specific value to peculiar forms. All the deductions of philosophical Botany depend upon the fixity of species, as the science of numbers does on the definite nature of units. If we admit transitions, we can only define a species as a particular abstract form, more or less completely realised in nature, under peculiar conditions, which we do not yet understand; but if, as is usually the case, we admit the fixity of species, we are bound to exercise sufficient care in our observations, to avoid raising accidental variations to this rank. In reference to M. Jordan's views, it was observed that he also regards the species as an absolute, and not an abstract form, but on this ground calls every tolerably constant variety a species. Mr. Henfrey considered that an important point was overlooked as to the nature of varieties. He regarded them all as abnormal conditions, depending upon the morphological and physiological relations of the different organs. Accordingly, he would take that as the true example of a species in the Phanerogamia, in which the seeds (the highest product) were most perfectly and abundantly produced, in a generally

healthy condition of the whole plant, and from such examples alone, where any doubt existed, should specific characters be drawn. In cultivation, a most important test in doubtful cases, the plants ought to be exposed to many different kinds of condition, otherwise a variety or abnormal form might be continued for a time by the very same influences which first produced it, while the varied conditions would afford the best means of judging of the relative constancy of characters, afforded by the different organs of the plant.—*G. E. D.*

On the Flowering of Plants. By HENRY BOYER, Esq.

IN the ‘Phytologist’ for this month I read an interesting article on the “Dates of the Flowering of British Plants.”

I send you a list of some of the plants I have found this year, with the dates, as it may tend somewhat further to illustrate the subject. The *Corydalis claviculata* is remarkably early; June and July are the months stated by Hooker and Babington for its flowering.

January 25. *Mercurialis perennis* and *Primula vulgaris*.

January 26. *Viola odorata* (not found by myself).

January 29. *Ulex europæus*.

January 31. *Vinca minor* and *Ranunculus Ficaria*.

February 15. *Tussilago Farfara*.

February 17. *Draba verna*.

February 19. *Viscum album*.

February 21. *Corydalis claviculata*.

March 9. *Veronica hederifolia* in flower and seed.

HENRY BOYER.

Farnham, March 15, 1849.

Occurrence of Sphærocarpus terrestris near Fakenham.

By GEORGE FITT, Esq.

BEING at Gately, five miles from hence, on Monday last, I examined a turnip-field which looked a likely place for *Sphærocarpus terrestris* to grow in, and to my great pleasure found it in abundance, and producing fruit. I have since examined fields within half a mile of this town, and with the like success. It is this season plentiful

amongst turnips, particularly Swedes; and the capsules most abundant.

Should any of your readers wish for specimens, I shall be happy to supply them, provided, of course, that the plant is in existence after the beginning of April, about which time it usually disappears. Dried specimens are scarcely worth examination, but I would supply them in default of fresh ones.

The early spring of 1846, when I before found this plant in fruit, was similarly mild to the present season, but more moist. The plant was then unusually abundant near Yarmouth, where it had been found for many years by Mr. Turner, but always barren.

GEORGE FITT.

Fakenham, March, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 439).

Artemisia Absinthium. In pastures, waste and stony places, on hedge-banks, by road-sides, and about farm-yards and villages in many parts of the Isle of Wight; abundantly. Salt ditch by the Vernon Hotel at Springfield, near Ryde, else almost unknown in this vicinity. Chalk-pit betwixt Yaverland and Brading, and a few plants on the northern slope of Bembridge Down, July 8, 1848, an extremely sequestered station. Plentiful and truly indigenous along the whole length of the Undercliff, in rough pastures and dry wastes, at Bonchurch, Ventnor, St. Lawrence, Bankend, &c. Profusely about Niton, as between Mount Cleve and the lighthouse (St. Catherine's), and in pasture ground beneath the cliff behind the Sand Rock Hotel. Everywhere along the road betwixt Niton and Blackgang, preferring rocky, arid places, the débris of the cliffs, and along the stone fences. In less certainly natural stations about farm-yards and villages, as at Yaverland, Kingston, Redway, Gottens, and many other places. I am not yet in a condition to state its frequency on the mainland, having received but few notices of it from correspondents; nor have I remarked it since I began to register the plants of the county gene-

rally, about a year or two back. Andover; Mr. Wm. Whale. Font-le-Isle iron mills; Mr. W. L. Notcutt.

Artemisia vulgaris. Abundant on dry hedge-banks, in waste ground, thickets and borders of fields in most parts of the county and Isle of Wight. I found the mugwort extremely common about Montreal and Quebec, September, 1846, where it was perhaps originally introduced from Europe for medical or economical purposes, but has now quite the aspect of a native production of Lower Canada.

———— *maritima*. Vars. *β. gallica* and *γ. salina*. Both forms very frequent in salt-marsh ground and muddy shores, both of the island and main. Shore near Quarr Abbey, sparingly. Shores of Brading Harbour here and there, as about St. Helen's, Carpenters, &c. Thomess Bay, King's Quay, and abundant in the salt marshes round Newtown and by the Yar. Near East Cowes. Frequent in Hayling Island, and shore betwixt Emsworth and Langstone in many places. Common, probably, along the entire Hampshire coast where it is low and muddy. Occurs for the most part in great abundance on its several stations, where it recommends itself to notice by the fine and powerful camphorated fragrance it gives out under the hasty tread of the least regardful of Nature's infinitely varied sources of delight and instruction to man. For myself, I much prefer the scent of this species to that of the common southernwood (*A. Abrotanum*), as purer or less contaminated by a certain bitterness which pervades the genus, and from which that old favourite of our English gardens is not absolutely free.

†———— *cærulescens*. Sea-shores; a very doubtful, and now apparently extinct native of England, if it was ever really found in Britain. "At Portsmouth, by the Isle of Wight;" Gerarde. On the coast of Brading Harbour, near Broadstone; Mr. W. D. Snooke. This species has been introduced into the British Flora on the authority of Gerarde and of Tofield; but although the old herbalist mentions it as a native of the opposite coast of Hampshire (Portsmouth), he does not, as Sir James Smith would lead us to suppose, assign the Isle of Wight as its place of growth, an error which seems to have originated with Smith, and from his own to have been copied into our later British floras. Yet in Mr. Snooke's little work (see note, p. 437) here referred to, a specific locality is given for *A. cærulescens* within the island, but where I have sought it without success. Mr. S. cannot himself now account for its insertion in his 'Flora Vectiana,' and there can be little doubt but that to some error or inadvertence its announcement in that catalogue was owing. Gerarde (em., p. 1104)

couples Rye and Winchelsea with Portsmouth as stations for his sea mugwort, or *Artemisia marina*, as he calls it (at fig. 3), referred by modern authors to *A. cærulescens*, and no doubt correctly; carefully distinguishing our common *A. maritima* as white sea wormwood (*Ab-sinthium marinum album*, p. 1099, fig. 1), thus showing that both plants were familiar to him. Merrett (Pinax, p. 11) citing Gerarde's figure of *A. cærulescens*, says it grows betwixt Deal and Dover, and by the asterisk prefixed to the name implies that it was seen there by himself; the authority of the Pinax is not, however, always the most trustworthy, as Merrett appears to have been no greater botanist than zoologist, and might easily have mistaken one species for another in this instance, great as is the difference between them. How (Phytographia, p. 11) merely quotes Gerarde and Lobel, and probably takes the former at his word without examination. Parkinson says nothing of it as a native of Britain, nor does Morrison, both giving the coasts of the Adriatic as its true region. The Lincolnshire station at Boston rests solely on the testimony of Tofield as cited by Hudson; Ray and Petiver omit to mention or figure it, as both would certainly have done had it been found in their time. In the Dillenian edition of the Synopsis, indeed, we find reference made to a sea wormwood with a broader leaf (Syn. p. 188-189, Nos. 3, 4), found by Plukenet and Sheppard, as well as of another observed by Dale near Colchester, which Ray is inclined to think may be one and the same species or variety with the former, but he is evidently ignorant of both. The very obscure and short account of these two plants does not, however, favour the idea that *A. cærulescens* was the species intended by Dale and Plukenet; yet it is singular that Ray should not once allude, either in the Synopsis or in his great work the 'Historia Plantarum,' to the alleged occurrence, by Gerarde, of the lavender-leaved mugwort on the Sussex and Hampshire coasts, even in the way of doubt or contradiction. As Tofield is the only modern authority for *A. cærulescens* in England, and even his testimony rests on the bare mention of his name by Hudson, the inference may be fairly drawn, either that some variety of *A. maritima* has been in every instance mistaken for the *cærulescens*, as we have seen to have been the case in this island, or that like *Echinophora spinosa* it may have occasionally appeared on our shores for a limited time, but from climatic causes have been unable to maintain a permanent footing. Both these plants inhabit the same botanical region, much to the southward of our own country, and both are recorded as having been found on the coasts of Brittany, but now

lost.* They are both maritime or sea-side species, and, as such, peculiarly fitted for transmarine migration, as their seeds would find a congenial place of growth the moment they were cast ashore; and if the climate of their new settlement were not too widely different from that of their natural soil, they might maintain their ground for some years under meteorological vicissitudes that must ensure their ultimate extinction, if not renewed by the same oceanic agency. Littoral or sea-coast plants are known to have in general a wider geographical range than inland ones, partly from the facility afforded them for migration by the waves, and partly from the greater equability of temperature which prevails along the shores of the ocean, or any great body of water. The same causes which extend the permanent will favour the accidental and temporary range of a species much beyond its proper average limits, and hence I would not be thought to refuse credence to the accounts we have of the occurrence of these and other plants upon our southern coasts, however great the probability that such accounts may be founded on errors of observation.

Tanacetum vulgare. On hedge-banks, by road-sides, and about the borders of fields, in various parts of the Isle of Wight. At St. John's, Ryde, sparingly. Near Lake Farm, Sandown. Plentiful by the road-side from Chale to Blackgang, and abundantly on a high bank betwixt Mottestone and Brixton. Hedges betwixt Niton and Whitwell, abundant in two or three places. Hedge-banks on the moors near Godshill. Dry pastures at Newchurch. Especially abundant on Vinnicombe Hill. Moor Town by Brixton, at Kingston, Sandford, and many other places. By Windmill Lane, Fareham, Mr. W. L. Notcutt, the only mainland station I happen to have on record, though I cannot suppose the tansey to be rare in that part of our county, any more than in this.

Filago germanica. In dry pastures, fields, waste and fallow ground, by road-sides, &c.; very universal and abundant over the county and Isle of Wight.

—— *apiculata.* In similar places with the last, and possibly not uncommon, but at present I can only record it in the following locality for Hampshire. In fields about midway between Farnborough station and Frimley; Mr. H. C. Watson! Having never seen this recent addition to the British Flora in a living state, and knowing it only through beautiful dried specimens sent me by the Rev. G.

* Near Nantes according to Bonamy. See Lloyd, 'Flore de la Loire Inférieure,' p. 333.

E. Smith, its first discoverer in this country, it would be presumptuous in me to offer an opinion on its claim to specific distinction. Yet I may be allowed perhaps to observe that an attentive perusal of the condensed descriptions of this and the three other assumed species its allies, *F. spatulata*, *canescens* and *eriocephala*, with Mr. H. C. Watson's remarks thereon, at p. 313, &c., of the present volume, has not inclined me to adopt the cautious and diffident conclusion he arrives at of the existence of three apparent species in this country; the characters seem too much interwoven or reciprocally applicable to each kind to be rendered satisfactory on paper to those who, like myself, have not possessed the opportunity of comparing them in a fresh or living state.

Filago minima. On barren, sandy or gravelly heaths, banks and pastures, but not very common, at least in the Isle of Wight. On St. George's and Bleak Downs. On Buck's Heath, between Kingston and Shorwell, and in a sandy field at the foot of Queen Bower. By Sibbeck's farm, near Niton. In Hayling Island, on the south beach, near the hotel, &c. Oakhanger, and most abundantly all over Short Heath, September, 1848. At Boldre, and doubtless in many other parts of the county.

Gnaphalium uliginosum. In sandy, gravelly and muddy spots, where water has stood, in half dried up ditches, and bare, damp places by road-sides, &c.; common over the county and island.

———— *sylvaticum*, var. *rectum* (*G. rectum*, Sm.). In dry, sandy woods, thickets, pastures and heathy places; rare? "Frequent in the south-west parts of the Isle of Wight;" Mr. J. Woods, Jun., in 'Botanist's Guide.' There is doubtless some error in the above statement, as, so far is this species from being "frequent" here, that not a single specimen has ever presented itself to observation during reiterated endeavours to verify Mr. Woods's assertion in this and other quarters of the island more likely to afford it, the south-western side being for the most part open, arable land, with hardly a patch of copse or brushwood, or even a tree of any size to be seen. The plant is still a desideratum to the Vectian flora. West Wood, W. Meon, July 18th, 1848. Warnford; Rev. E. M. Sladen. Langrish; Miss G. E. Kilderbee! and probably in numerous other places within the county. N. B.—*Antennaria dioica* may not unreasonably be looked for on the high heaths and Downs in the north of Hampshire.

Doronicum plantagineum. In woods and pastures? At East Woodhay; Mr. J. E. Winterbottom in Curt. Brit. Entom. vol. xvi.

tab. et fol. 754 (sub nomine D. Pardalianches). Having been hitherto unable to obtain particulars respecting the leopard's bane in this its only recorded Hants station, I do not venture to pronounce it indigenous to, or even as certainly found within, the county; for East Woodhay is so close to the confines of Hants and Berks, that in the absence of specific information a doubt may arise whether the plant was gathered in the former or the latter. Both these points I shall hope to clear up at the proper season. Mr. Curtis's beautiful figure plainly, I think, represents the D. Pardalianches of E. B. vol. ix. t. 630, now referred to D. plantagineum. The synonyms of this last are much confused, and it is doubtful if ours be the Linnæan species so denominated. The genus *Doronicum* inhabits alpine or subalpine places in southern and central Europe, and not being plants of low and maritime counties it is not likely that any are truly native in the south of England, whatever may be the case with them in the "cold mountains of Northumberland," where Gerard affirms they grow.

Cineraria campestris. On dry chalky Downs and pastures; rare? Near Basingstoke and Andover, Huds. Fl. Ang. On Flower Down, near Winton; Rev. Messrs. Garnier and Poulter in Hamps. Repos. !!! Abundantly on Stockbridge race-course, where the Bibury meeting is held; Dr. A. D. White. Warnford; Rev. E. M. Sladen. Dr. White kindly conducted me in May last to the station on Littleton or Flower Down, as it is called indifferently, and where this rare plant still grows in considerable plenty on the short turf of the yet unenclosed part of the Down, which is used by a well-known breaker-in of race-horses for a training ground. The authors of the catalogue in the 'Hampshire Repository' give Belhan, Isle of Wight, as a *trans-solentine* station for the *Cineraria*, the *locus* of which has to this day continued to be a profound mystery to myself and every one else in the island of whom I have made inquiry times without number, nor has the plant yet occurred with us to my knowledge in any other than the very apocryphal habitat just mentioned. If attention be not drawn to the very different root-leaves, its unassuming aspect may fail to attract notice from a hasty passer-by, who may set it down for an unhappy specimen of *Senecio erucifolius* with flowers reduced to their lowest terms as to number by uncongeniality of soil or situation. The affinity (perhaps too near) of its genus to *Senecio* might make such a blunder almost excusable in any person not familiar with the present species.

Senecio vulgaris. In waste and cultivated ground, fields, gardens, &c.; abundant everywhere.

Senecio sylvaticus. On dry sandy or gravelly banks, pastures and heaths, also in woods and waste ground, but not very common in the Isle of Wight. About Sandown abundantly, as on Royal Heath, Lake Common; about Bordwood and Alverstun. Ditch-banks on the moors north of Godshill in several places. Newport, along the road to Yarmouth. Sandy fields and banks under Bleak Downs, &c. Probably not rare in mainland Hants; its omission from that part of the field of our research is one of those accidental gaps in the county flora which a little more extended opportunity for observation than I have yet enjoyed will enable me to fill up at no distant date. N. B.—*S. viscosus* may be looked for with considerable probability in this county.

—— *erucifolius*, (*S. tenuifolius*, Jacq.) In woods, on hedge-banks, by road-sides and borders of fields; a prevailing species in the Isle of Wight, especially in the chalky districts. Plentiful betwixt Ryde and Brading, about Newport and in most other parts of the island. The Salterns, Carns, near Fareham; Mr. W. L. Notcutt: and probably common in the county, although I find no special mention of this species in my notes.

—— *Jacobaea*. In moist meadows and pastures, on ditch-banks, waste ground, and by road-sides; common over the entire county and island.

—— *aquaticus*. In wet places, meadows, ditches, &c., very common.

Carlina vulgaris. In dry hilly, sandy, or heathy pastures, fields and rough rocky waste places; very common in the Isle of Wight and I believe the county generally. Abundant in Luccomb Land-slip, and in many parts of the Undercliff. At Blackgang, and on St. Catherine's Down, &c., plentiful. Maindell chalk-pit, Fareham; Mr. W. L. Notcutt.

Centaurea nigra. Everywhere abundant in woods, thickets, pastures, hedges, waste ground, and by waysides. Var. β . *radiata*. As frequent, if not more so than the rayless form over a great part of the Isle of Wight, particularly on the chalk; very common in Undercliff, as about Ventnor; between Shanklin and Bonchurch, at Carisbrook, &c. Mr. Babington distinguishes this in the Manual from a similar plant with radiate outer florets, which he refers to *C. nigrescens* of Willdenow, on the authority, apparently, of Koch. Whether we possess this last as well as the other in the island, or if both are but states of *C. nigra*, I am still in doubt. I had always supposed our Hants radiated black knapweed might be Willdenow's *nigrescens*, but

it would seem we have something in England still different, and which is the proper *nigrescens* of that author. This I have either not fallen in with, or am unable to distinguish by description from the var. β . *radiata* of our common *C. nigra*. With regard to this latter form, I have been at much pains to find a constant mark apart from the sterile outer florets, by which to distinguish it from the more normal state of *C. nigra*, but without success; the differences as laid down betwixt *C. nigra* and *nigrescens* in the Manual convey no very clear conception to my mind of their dissimilarity; the determination of the radiant plant of this island to its proper place, if a species or variety, must of course await a definition of *C. nigra* and *nigrescens* less obscurely enunciated than it is at present. I hardly know how far our var. β . is common or otherwise on the mainland of Hants, not having attended to the point. At Clanfield; Mr. Pamplin in New Bot. Guide. Mansbridge, near Southton. I once picked it with white flowers near Niton, Isle of Wight. Nearly all the alleged habitats for *C. Jacea* in Britain have turned out on inquiry to be our radiate variety of *C. nigra*. Are the Irish stations in Fl. Hibernica anything else but this form? Was more than a single plant of the true *C. Jacea* found in Sussex? And lastly, what is the genuine *C. Jacea*?

Centaurea Cyanus. In corn-fields and other cultivated ground; very common throughout the island, and I believe the entire county.

———— *Scabiosa*. On banks, by road-sides, about hedges, borders of fields, and amongst corn; very common, but most abundant on the chalk. Heads of flowers flesh-coloured, outer radiant florets white. In a field near Yarmouth, a single specimen, September, 1839. Chalky fields above Sandown Bay, July, 1848. By St. Lawrence's church, August, 1842; Rev. Wm. Thickens!!! A very handsome variety, well worthy of cultivation. All the florets in the head white; near Westover, Isle of Wight, August, 1843.

‡———— *solstitialis*. In cultivated land amongst corn, clover, lucerne, &c.; also along the borders of fields and in waste ground; very rare, and probably not indigenous to any part of the county of Hants. Found a good many years ago by my estimable friend the Rev. G. E. Smith, in a newly broken up field by the road-side above Bonchurch, growing to all appearance truly wild amongst *Artemisiæ* and other *Compositæ*! Sought there unsuccessfully by me in 1837, and not since observed in that or any other part of the island, nor have I received intimation of its occurrence on the mainland of Hants. Usually considered, and perhaps justly, as an imported

species in this country, but being rarely abundant, like many other annuals, seldom continues long in one spot, but shifts its station within certain limits, or disappears entirely. The late Lady Blake informed me it is to be found most years about Barton and Rougham, near Bury, but scarcely in the same field for many successive seasons.

Centaurea Calcitrapa. In dry pastures, waste places, on commons and along road-sides, on chalk, gravel, or sand; rare. Road-side between Niton and St. Lawrence (with white flowers), September, 1833; Mrs. Dixon. Not now to be found there (Mrs. D. thinks from the road having been *improved*), or so far as I can ascertain, in any other part of the Isle of Wight. Peel Common, near Fareham, and on Portsdown Hill, near the Nelson Monument; Mr. W. L. Notcutt!!! I looked for it in vain on Portsdown, but found it in plenty on Peel, and still more abundantly on Chark Common (which is but a continuation of the former towards Stubbington), forming large bushes, and still in ample flower, October 13th, 1848. It probably grows in many other places in mainland Hants, towards the coast, but is rather a plant of the eastern or "Germanic" than of the western or "Atlantic" type of distribution, or perhaps should be regarded as making a transition from that to the purely "English" type. It is apparently wanting over by far the larger portion of England, inclining more and more to the eastern side of the island as it advances northward, and only in the extreme south attaining the meridian of Devon on the west. I have gathered it in Jersey, and remarked it abundantly many years ago in Sussex, on this side of Brighton. I have likewise seen it in Suffolk, near Ipswich, and in June, 1847, gathered it in great abundance at Norfolk, in Virginia, where it is completely naturalized on waste ground about that now somewhat elderly American city.

Arctium Lappa. In waste places, woods, by way-sides and margins of fields, &c.; very common. Var. α . *A. majus*, *Schkuhr*? By Shanklin farm, &c. Var. β . *A. minus*, *Schk*? *A. Bardana*, *Willd.* Much the more frequent variety of the two. Ventnor Cove, &c.; plentiful. These are very possibly, as Mr. Babington regards them, distinct species, a position I am rather inclined to accede to than controvert; but, not having yet studied the two sufficiently to be convinced that such is the case, and still seeing cause for doubt and suspension of judgment, I prefer risking the commission of the minor error of undue combination to the far greater evil of unnatural separation. The prominence given to marked yet dubious forms by special record under the head of varieties, suffices for their discrimi-

nation as effectually as exalting them to species, with this advantage, that should their claims to the higher distinction be proved untenable, no violence is done to Nature, or additions made to the vast heap of discarded synonyms which now burden the books ; indelible memorials, too often, of haste, vanity, or prepossession.

Onopordon Acanthium. In dry waste places, by road-sides, on hedge-banks and amongst rubbish. Extremely rare, if not now quite extinct, in the Isle of Wight. Sparingly on Ryde Dover prior to 1842, since then completely extirpated by building. A solitary stunted specimen in the middle of a clover lay at Thorley, September 12th, 1842, most likely brought in with the seed. I have not met with it since in any part of the island. Apparently scarce in the county generally, as I have only the few following stations on record. A single specimen picked by myself by the road-side near Weyhill, June 26th, 1848. Near Southampton ; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Breamore Downs ; Miss May.

Carduus nutans. In dry waste ground, rough, barren fields, pastures and fallows ; plentiful in calcareous soils in most parts of the county. Abundant on the sides and summits of most of the high Downs in the Isle of Wight, and in old chalk-pits. The elegantly drooping heads of flowers of deepest crimson, from their size and stellately spreading involucreal scales, are peculiarly handsome and conspicuous. Their scent is agreeable, but to my perceptions not exactly such as to entitle this species to the name of musk thistle.

———— *acanthoides.* In woods, thickets and on hedge-banks, also (but more rarely with us) in dry, open waste places, fields and pastures. Not very general in the Isle of Wight. Near Ashey farm, and about Arreton. Betwixt Shanklin and Bonchurch. Plentiful in woods at Swainston. About Knighton,* and near Cowes, &c. ; usually in quantity where it occurs, but certainly quite local here. I have no mainland station as yet to give for this species, which nevertheless I cannot think is likely to be uncommon in that part of the county. Unfortunately there are certain natural orders and genera, such as Cyperaceæ, grasses, some Compositæ and others, which collectors and observers are too apt to pass unnoticed ; hence my county list is partially deficient in these tribes for want of that infor-

* An old manorial residence near Newchurch, now in ruins, sometimes called K Knighton, in contradistinction to Niton or Crab Niton, at the back of the island, which sobriquet this last has gained from the gigantic crustaceous fishes on the coast, the admiration of all gastronomic tourists.

mation I am compelled in a great degree to rely on others for obtaining as regards the mainland, though for the island I trust they will be found pretty completely worked out by personal research. The specific name of the plant now under consideration has no doubt been given it from the strong resemblance of the first year's root-leaves to those of *Acanthus*. Ours is usually the var. *β. crispus*, and apparently biennial.

Carduus tenuiflorus. On hedge and ditch-banks, in dry waste places, and on the high chalk Downs abundantly in various parts of the Isle of Wight. Profusely below the rocks near Mirables, at Blackgang, &c. On the chalky Downs in W. Medina in plenty; Mr. W. D. Snooke !!! Everywhere about Freshwater; Mr. Dawson Turner in Fl. Vect. !!! This species delights to grow along the earthen fence-banks which stretch across the summits of our highest Downs, and which it sometimes covers in dense patches for many yards together. Between Stubbington and Hill Head; Mr. W. L. Notcutt. Seldom found far inland, but probably not rare along the Hampshire coast. Filaments densely hairy below the anthers.

———— *lanceolatus*. A common and troublesome species everywhere in pastures, waste places, woods, by road-sides, on ditch-banks, &c. Mr. Gardiner ('Flora of Forfarshire') holds this to be the true national badge of Scotland, and to none of our thistles is the motto *Nemo me impune lacessit* more applicable than to this, from the extreme pungency of its long, slender, but formidably acute spines.

———— *eriphorus*. In dry hilly pastures on chalk or limestone, but very local. Between Luccombe and Bonchurch; Mr. J. Woods in Bot. Guide: and where, on the rough broken ground across which the foot-way from Shanklin passes, it still grows in some plenty; as also towards the Bonchurch extremity of East End (Luccombe Land-slip) in several places rather abundantly. About Ventnor and Bonchurch here and there. In considerable plenty on chalky slopes betwixt the woods at the head of the valley between Apes Down and Rowledge, 1843 and 1845. Fields near Buccombe Down on the east side, nearly above Idlecombe, in some quantity, July, 1845. Bere Forest and elsewhere in the county; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Near Overton, Popham Lane and Basingstoke; Mr. E. Forster, Jun. in Bot. Guide. The most beautiful and conspicuous of British, if not of European thistles; the globose involucre often the size of the largest orange, interlaced with a web rivalling the gossamer in delicacy, present a singularly elegant

appearance in conjunction with the bright purple of the florets and the exotic aspect of the large and formidably armed leaves. With us here, the species is always found at some elevation. I have never remarked it in the lower and flatter parts of the island.

Carduus arvensis. By road-sides, in rough, waste places, fields, pastures, and neglected gardens, far too abundantly; an execrable pest in damp corn-fields and cultivated ground, and now as well known and detested in the United States, where it goes universally by the name of Canada thistle or cursed thistle, having been supposed to have migrated to that country from Europe, and thence to have spread itself southward and westward with the progress of agriculture and colonization.

———— *palustris*. In moist meadows, pastures, woods and thickets, on ditch-banks, and in other damp or wet situations; plentifully. This and *C. arvensis* occur here and there with the heads of florets white.

———— *Forsteri*. Damp or boggy places; very rare. A single plant was found growing some years ago by the Rev. G. E. Smith between the Needles (Groves's) Hotel and Alum Bay, with a dried portion of which he kindly presented me. Mr. Smith's opinion, now become the general one with botanists, is, that *C. Forsteri* is a casual hybrid betwixt *C. palustris* and *arvensis*. I have never seen the plant living, and therefore keep it apart in deference to those who still hesitate to consider it a mule production, although pretty well convinced in my own mind that it is merely such.

———— *pratensis*. In low, damp or boggy meadows, on moist heaths, pastures, and in wet marshy woods and thickets, in various parts of the Isle of Wight and county, but not very common; usually, if not invariably, at or near the sea level; never in elevated or hilly spots, however humid, so far as I have remarked. Near Ryde, by Quarr Abbey and Fishbourne. Easton Marsh, Freshwater Gate. Near Cowes, Northwood, Newport, Freshwater and other parts of the island, in some places very abundantly. I do not know how far it is common or rare on mainland Hants. I have found it frequent about Southampton in dry ground on the common, as also in a wet meadow at Netley. Titchfield Common; Mr. W. L. Notcutt. If less showy than some others, this species excels all our native thistles in the graceful simplicity of its elegant tassel-shaped flowers; innocuous and unobtrusive it repels not approach with the keener weapons of its tribe; nor, forsaking its native unproductive bogs for the fertile

and well-drained meadow, does it often incur the ban of the neat and diligent husbandman.

Carduus acaulis. An abundant and rather troublesome plant in dry upland meadows and pastures, throughout the county and Isle of Wight. Extremely common on all our high chalk downs, to their very summits. The state producing a stem several inches high I have found near Swainston, in this island. The heads of handsome flowers, sprinkled over and closely sitting on the short elastic turf, show like tufts of crimson silk on a ground of green velvet. The very rare *C. tuberosum*, found in the adjoining county of Wilts, may reward a diligent search in the thickets that partially clothe the sides of our Hampshire downs.

Silybum marianum. On dry hedge and ditch-banks, by road-sides, and in waste ground at the outskirts of towns; more truly wild in woods, thickets, and on our elevated downs, here and there abundantly, but not general. On Ryde Dover, and in St. John's Street, Ryde, in small quantity, but now, I believe, extinct in both places. Truly wild in various spots along the Undercliff, in rough wooded ground, as between Ventnor and Bonchurch, not far from the Pulpit Rock, where it used to be very frequent and luxuriant some years ago, when that part was in a state of nature, and unencroached upon by buildings as at present. Under the cliffs above the road near Mirables, and on the edge of the down at the top of the cliff above Woolverton, near St. Lawrence, in considerable plenty in both stations. Rough pasture ground at Niton, and by the road-side near the Sandrock Dispensatory, as also occasionally in many other parts of the island. In some of its stations it may have resulted from long antecedent cultivation, but the milk thistle is rarely to be seen in our modern gardens, at least here, although it is said to have been once grown for the table, and eaten in the manner of artichokes.

Serratula tinctoria. In woods, thickets, and dry, heathy, bushy places; common. In Quarr Copse, Shore Copse, Stroud Wood, Firestone Copse, and elsewhere about Ryde in plenty. Woods at Wootton, Cowes, Yarmouth, Newtown and other parts of the island very frequent, and I believe equally so over the entire county. I have several times known the saw-wort mistaken for a *Centaurea* by young or inexperienced botanists, to which genus it bears certainly a deceptive resemblance in habit and inflorescence. A variety with white flowers and uncoloured involucreal scales I picked on a bank close to Whitwell, Isle of Wight, September 6th, 1845.

Lapsana communis. In waste and cultivated ground, hedges,

woods, &c., everywhere very common. Dr. Salter found a specimen of this plant betwixt Morton and Adgeton, near Brading, with a very close, erect, corymbose panicle, and the rays of the very numerous heads of flowers imperfectly developed. Var. β . Leaves deeply and coarsely dentate and angular. On a bank by the road-side from Aldermoor to Haven Street. Near Stroud Wood, Isle of Wight, July, 1841. A remarkable, but possibly not very uncommon form, with the terminal lobe of the leaves large, angular, cordate, acute, approaching to *Lactuca muralis* or *Chenopodium hybridum* in outline.

N. B.—*Arnoseris pusilla* (*Lap. pusilla*, Willd.) will, it can hardly be doubted, be found to inhabit the county, though hitherto unrecorded. Mr. H. C. Watson observed it profusely in some sandy fields between Frimley and Chobham ridges, in Surrey, very near the boundary line betwixt that county and this. The extensive sandy tracts north of Petersfield, towards Farnham, may be expected to yield this and other sand plants, as *Apera Spica-venti*, and perhaps *A. interrupta*, the latter a recent and highly interesting addition to the English Flora.

Cichorium Intybus. In corn-fields, by road-sides, and on chalky or gravelly banks and pastures; decidedly uncommon in the Isle of Wight, and apparently not less so in the county generally. About the ascent of the hill leading up to Hampstead farm (Mrs. Nash's), near Yarmouth; Rev. James Penfold and Rev. Wm. Darwin Fox !!! By the road-side between Idlecombe and Roughborough farms for nearly 100 yards; Mr. G. Kirkpatrick !!! Chalky hollow in a field behind, and nearly between Plash and Buccombe; W. A. B. Fields near St. Lawrence; Mr. G. S. Gibson (*Phytol.* Nov. 1843). Stray specimens occur amongst corn and by road-sides occasionally in most parts of the island. Observed, but very sparingly, about Porchester and at Wymmering, 1848. Droxford, Wheely; Rev. E. M. Sladen. Road-side near Bishop's Waltham; Miss L. Sibley. Andover; Mr. Wm. Whale. Fontley; Mr. W. L. Notcutt. I have seen this plant grown on a small scale for feeding cows, at Niton, and as an adjunct to or a substitute for coffee, the roasted roots are extensively employed on the continent, where the species is cultivated in quantity as chicory, for that single object.

Hypochæris glabra. On dry sandy or gravelly heaths and pastures, also in cultivated fields, amongst turnips &c., in a similar soil; rare? In a sandy turnip-field near Cliff farm, by Shanklin, along the footway to Apse and America, in considerable plenty, October 14, 1847. On Short Heath, Oakhanger, near Selborne, September, 1848.

With *Filago apiculata* in a field on the left of the road from Farnborough Station to Frimley (Surrey), on the Hants side of the stream (Blackwater River) that divides the two counties; Mr. H. C. Watson (in litt.). Perhaps not so uncommon a plant with us in Hants as it appears to be, since the eye is not readily attracted by it, excepting when specially on the look-out for its occurrence, owing to its small size and resemblance to other and commoner species of the order, and above all, because its minute yellow heads of flowers only open, as Curtis observes, at 9 A. M., and close about 2 P. M.; whereas those of *H. radicata* do not observe the same brief vigils, but continue expanded throughout the day.

Hypochaeris radicata. Very common almost everywhere in meadows, pastures and waste places, on banks and along hedges, &c.; often a troublesome weed on lawns and grass-plats. Var. β . Leaves glabrous and shining, somewhat fleshy. Common on the banks of debris in Sandown Bay, between that village and Shanklin, August, 1842. Involucres sometimes quite smooth, but most usually hispid, with erect whitish hairs or bristles. N.B. *Achyrophorus* (*Hypochaeris*, L.) *maculatus* should be looked for on chalky pastures and downs in this county, with the greatest likelihood, perhaps, of success towards its northern boundary.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
January 30, 1849.

(To be continued).

Botanical and Conchological Specimens.

THE North of England Agricultural School is situated at Great Ayton, near the market town of Stokesley, in the beautiful district of Yorkshire called Cleveland, which extends along the extremity of the vale of the Tees and the shore of the German Ocean to Whitby. It was established by the Society of Friends, in 1841, for the education of boys and girls not members of that Society, but who had some claim on their care, from their ancestors having been members, or their parents attending the meetings of Friends. The agricultural pursuits of the scholars occasioning their being a considerable portion of time each day in the fields and gardens, the friends of the School thought it desirable that the study of Botany should be intro-

duced among them, being well aware that the neighbouring mountains and valleys, and the shores of the ocean, abounded in the indigenous plants of our island. They commenced in the spring of 1844; and such was the earnestness with which they took up the pursuit, that in the summer and autumn of 1845 their dried specimens of flowering plants were so much admired, that many friends expressed a desire to purchase them. Since that time many sets have been sent out, and the proceeds expended in purchasing botanical books and periodicals, in printing catalogues, and excursions to the shores of the North Sea and the vale of the Tees.

GEORGE DIXON.

Ayton School, February, 1849.

[For further particulars see advertisement on wrapper of April 'Phytologist.'—*E. Newman.*]

The Case of the Robertsonian Saxifrages, between Mr. Andrews and Mr. Babington. By HEWETT C. WATSON, Esq.

THE matter at issue between Mr. Babington and Mr. Andrews, although several times alluded to in the 'Phytologist,' has never been clearly or connectedly stated; and it is rendered quite obvious by the strangely irrelevant paper of Mr. Backhouse, in the last No., that the case is totally misunderstood by that gentleman at least. The strictly scientific point of the case may now be considered as settled; Mr. Babington having himself at length admitted the correction of his too hasty statements, as made by Mr. Andrews. But the former botanist's attempt to defend his own proceedings in the matter, has such an important bearing on what may be aptly called the ethics of science, that I feel strongly induced to offer a more explanatory version of the case than has hitherto appeared in one connected statement. In attempting to epitomize the circumstances, I may fail to give them with that literal exactness and fulness which would be secured by quotations and documentary evidences, but I trust that the following will be found a substantially correct representation of the matter.

Some years ago, Mr. Babington published a paper in the 'Annals of Natural History,' in order to show or state that the Irish plants of *Saxifraga umbrosa* differ in a peculiar manner from the Pyrenean examples of the same species. That first paper was afterwards (1844)

followed by a second, to the same general purport, but extending the alleged peculiarity to the leaves of *Sax. hirsuta* and *Sax. Geum* likewise. The ultimate statement of Mr. Babington amounted to this; namely, that on the Pyrenean examples of the three species mentioned the leaves are always obtusely crenate; whereas, on the Irish examples of the same three species the leaves are always acutely crenate, or dentate, or serrate;—say, for sake of brevity, crenate in the one country, serrate in the other.

Taken by itself this alleged difference between the leaves of the Irish and Pyrenean Saxifrages was but a trifle, although a curious trifle, in descriptive botany. But by its direct bearings upon large questions in botanical geography, touching the derivation of distant floras and the migration of species, it assumed a character of much greater importance. A more extended scrutiny by other parties, so as to confirm or to correct the statements of Mr. Babington, whichever might be found necessary, became very desirable; at any rate, desirable in my own view of the matter, if not in the eyes of other botanists.

For Ireland, the desired scrutiny was happily undertaken, and prosecuted ably and zealously by Mr. Andrews. The results of this botanist's researches and experiments were in direct contradiction to the statements made by Mr. Babington. The most ample evidence was procured by Mr. Andrews, to prove that the alleged Pyrenean forms of leaf occurred on the wild Irish plants, and were also produced on plants in gardens, raised from Irish seeds. Moreover, what is highly important in such matters, Mr. Andrews did not simply make assertions without visible proofs of their truth and accuracy; but, on the contrary, he distributed seeds, living plants, and dried specimens, freely and numerous, to other botanists.

Fortunately, also, it happened that Englishmen were collecting the Robertsonian Saxifrages, about the same time, on the Pyrenees. The collections and observations of Dr. Southby and Mr. Spruce brought out a considerable store of evidence to prove that the alleged Hibernian forms of leaf were to be found, if looked for, on the Pyrenees also. Their proofs do not appear to have been sought or collected with a view particularly to the question agitated, and are therefore less ample and complete than those of Mr. Andrews; but they are quite sufficient to establish the fact.

The general result is, that crenate and serrate leaves are produced in Ireland, and that crenate and serrate leaves are produced on the Pyrenees. Mr. Babington's apparently curious discovery turns out

to be simply an instance of too hasty generalisation on the part of that botanist,—accurate so far as it went, no doubt; but going only just far enough to diffuse error, instead of establishing truth.

While the inquiry might be considered still pending and unsettled (1845), Mr. Andrews made a communication on the subject, through Professor Allman, to the British Association, assembled at Cambridge, in which he stated the results of his own investigations, as views “altogether in opposition to those advanced by Mr. Babington, and published by him in the ‘Annals of Natural History.’” I am told that Mr. Babington was present, but made no remark at the time, when the paper from Mr. Andrews was laid before the sectional meeting. And I am also informed, that a copy of Mr. Andrews’ paper was given by Professor Allman to Mr. Taylor, for publication in the Annals. But the said paper never appeared in that periodical.

Such are the facts of the case, if I understand them rightly. And in forming a judgment on the matter, it is proper to keep in mind that Mr. Babington had circulated a grave error through the pages of the Annals, and had deliberately re-affirmed and extended the original error by a second paper on the subject. Also, be it remembered, that the control or management of the botanical portion of the Annals is undisguisedly placed in the hands of Mr. Babington, whose name appears on the cover of the periodical, and his initials appended to many of the articles.

Now, writing as an individual, and expressing an individual opinion, I will say, it appears perfectly clear to my judgment, that Mr. Babington ought to have corrected his erroneous statement in the pages of the same periodical through which he had given circulation thereto;—or, failing his own inclination to do this, that Mr. Andrews ought to have been allowed to make his counter statement in the pages of that periodical. So far as the Annals went, Mr. Babington’s error continued to stand as an unrefuted and scientific truth, eminently calculated to mislead any botanist who might see and rely upon it. The partial antidote of a counter statement having appeared in the ‘Phytologist,’ in a Report of a meeting of the Botanical Society of London, or incidentally in a paper on a different subject, could not release an individual from the obligation (if such an obligation exist) of correcting his own published statements, ascertained to be untrue in reality. The antidote, moreover, was put forth by another party, and in another periodical, *because Mr. Babington did not make the correction himself.*

While I thus express my own individual opinion, and, in so doing, adopt the very words of the *Phytologist's* correspondent "C.", that there was "a scientific, if not a moral, obligation" on Mr. Babington to have corrected the untrue statement, I am of course quite ready to *admit the right* of Mr. Babington, and of any other botanist, to hold a dissentient opinion, to express it, and to act upon it, if he so think fit. But I do not *covet* the views of science, or the sense of truth and right, enjoyed by any man who feels himself not called upon to correct grave errors which he has thrown into circulation, where there is strong probability that other persons may be misled by them. I call the error a grave one in the case before us, because of its important bearings upon botanical geography.

I cannot well guess what may be the opinion of readers of the '*Phytologist*,' on the scientific obligation above alluded to. It has, however, been the recognized practice in the '*Phytologist*,' to allow full freedom in the refutation of any, even very trifling, errors which have appeared in its pages, whether editorial or otherwise. And this, I believe, will always be the practice and the wish of all sincere men, lovers of scientific truth.

But I *can* guess, with a confidence approximating to positive certainty, that if the question were laid before any body of men habitually devoting their thoughts to mental or ethical science, that their views would coincide with mine, on the point of the suggested obligation; just as Mr. Babington could guess, with the utmost confidence, that a body of botanists would join with him in pronouncing cereals to be grasses, although a non-botanical farmer would rather pronounce a *Trifolium* or a *Medicago* to be grass.

Mr. Babington stated in the '*Phytologist*' for this month (*Phytol.* iii. 474) that he knows nothing concerning the paper sent to be inserted in the *Annals*. He and I evidently must think and feel very differently. I should have made it my duty and desire to know something about a paper which refuted, by facts, any considerable error that had been sent into public circulation by myself.

I intrude in the matter at issue, because Mr. Andrews kindly communicated to me the results of his investigations and experiments, as they were obtained, and explained the circumstances of the case; and "C."s acquaintance with the affair has been derived from mine.

HEWETT C. WATSON.

Thames Ditton, April 3, 1849.

Reply by the Reviewer "C." to certain Errors of Representation, on the part of Mr. James Backhouse, Junior, in 'Phytologist' iii., pp. 475-6.

IN the 'Phytologist' for April first, as above referred to, an article appeared from the pen of Mr. James Backhouse, which was unfortunately rendered most appropriate to the date of publication, by his strictures being founded upon, and adapted to, an utter misconception of the real question at issue. It is much to be regretted that his odd mistake was not pointed out to Mr. James Backhouse, so that he might have altered the title and first paragraph of his communication, in such manner as to escape the justifiable charge in retort, of bearing false witness against C. through sheer carelessness and inattention on his own part. Of wilful misrepresentation it would be absurd to accuse Mr. Backhouse. But surely, before publishing anything like strictures upon another party, he was bound to know whether his representations were true or false.

The title given to his paper, and the representation and comments hazarded in the first paragraph of it, are evidently derived from an utterly erroneous fancy that the question between Mr. Babington and Mr. Andrews, as alluded to by C., had been merely a matter of opinion or inference respecting the *specific distinctness* of the Robertsonian Saxifrages. But the real point at issue between those botanists, and the point to which C.'s remarks were applicable, was a matter of fact; namely, the similarity or difference *in the serratures of their leaves*. The words of C. were so brief and clear as scarcely to allow the shadow of an excuse for mistaking, and consequently misrepresenting them. Here they are:—

"The individual writer of this notice can fully confirm the statements of Mr. Andrews, *in respect to the very variable forms and serratures* of the leaves of the Robertsonian Saxifrages of Ireland; as well as their general identity, *in these respects*, with examples of the same species from the Pyrenees."

Neither in the passage here quoted, nor in any of the after comments made by C., in reference to the facts which it involves, was there a single word about "*specific distinctness*." Nevertheless, Mr. Backhouse has volunteered the publication of strictures upon the comments of C., under the following title given to his paper:—

"A few Remarks on the 'Proof' of C. C. Babington's 'Error' *respecting the specific distinctness* of *Saxifraga Geum*, elegans, hirsuta, &c. &c. By James Backhouse, Jun., Esq."

And in the first paragraph of the article, he represents C. as maintaining that there is evidence "sufficient to overthrow the specific distinction between umbrosa, elegans, hirsuta, and Geum," and "to require" a retraction and declaration from Mr. C. C. Babington, the nature of which is not clearly expressed in the rather confused and ungrammatical paragraph referred to, but apparently a declaration that he was in error in supposing the species distinct. C.'s reply to this is, *first*, that he said nothing whatever about specific distinctions or specific distinctness; *secondly*, that he never called upon Mr. Babington to retract any opinion or declare any error in regard thereto.

In reference to the real question towards which the comments of C. were directed, Mr. Babington has himself admitted that his former statements are untenable. C.

On the Disappearance of Plants from Localities once assigned to them. By EDWIN LEES, Esq., F.L.S.

THE exploring botanist who delights in out-of-door rambles, is often perplexed by the non-appearance of plants in their recorded places of growth; and if his temper, like ill-dried specimens, be "none of the best," he perhaps, orally or in print, vents an imprecation on the unlucky person who is conceived to have misled him, and who, almost with a sneer, is at once adjudged to be no authority. The more candid observer, conscious of the almost yearly changes that occur in the localities of many plants, will not be so ready to decry the remarks of his predecessors, but be willing to credit them, unless in the case of actual specimens wrongly named. But observations of changes in the habitats of plants, and of their disappearance from old stations, require to be more frequently journalized than they are. I have been led into these remarks from a statement of Dr. Bromfield's, in his interesting 'Catalogue of the Plants growing wild in Hampshire.'

Dr. Bromfield (Phytol. iii. 494) mentions that he has been unable to find *Gnaphalium sylvaticum*, var. *rectum*, in the Isle of Wight, though stated to be "frequent in the south-west parts" of the island, by Mr. J. Woods, jun. Now my own experience of this plant in Worcestershire and Gloucestershire, goes to prove that it may be *most abundant* in some seasons, and then not be visible again for a

long time. I have in my herbarium a specimen gathered at the base of the North Hill, Great Malvern, prior to 1830, yet for years afterward I could never find any more specimens; until in 1841, in company with Mr. Moggridge, of Swansea, several hundreds occurred half-way up the adjoining hill, all growing together. I have been often times since to the spot to see if the colony continued there, but they have all taken flight. Some years since this *Gnaphalium* used to grow plentifully in Shrawley Wood, near Worcester, but it is scarcely to be found there now, or must be very closely sought for. I remember an excursion I once made on the Cotswold Hills with Professor Buckman, of the Agricultural College, Cirencester, when, in a field on Clevedown that had recently been made arable, the profusion of *G. sylvaticum* that covered the ground on the declivity was astonishing; but the next year the Professor informed me very few plants remained, and the third year every vestige of them was gone. I have since then been on the spot, but neither there nor anywhere about the vicinity could the plant be met with on the most diligent search. A similar fact occurred to the view of my friend Mr. William Mathews, jun., of Park Hall, near Kidderminster, the Secretary of our Botanical and Naturalists' Club, who, the year before last, noticed hundreds of *G. sylvaticum* in a field recently converted from pasture to arable. Probably now none could be found, nor had they been seen there previously.

Such appearances doubtless occur with other species, and it is interesting to note them, for "Saturnian times return;" and I have known plants revisit their old stations after long absence. It does not appear very easy to determine whether, in the case of fresh turned up soil, the seeds had long lain dormant there, or whether elemental action had brought them from a distance; perhaps both causes may operate. But the migrations of plants being often very capricious, and even unaccountable, as daily experience shows, I think the observations of former labourers in the field ought not to be disregarded as doubtful or erroneous, or dismissed at once, as they sometimes are by closet reasoners, as unlikely.

Several plants are recorded by Dr. Stokes, in his edition of Withering's Botany, 1787, as growing near Worcester, which are not now to be found there. Among these is *Lepidium ruderales*, "on the side of the Severn above Worcester," which I could never meet with. But in 1847, botanizing with my friend Mr. Baxter, of the College School, in this city, on the banks of the saline Droitwich canal, we most unexpectedly came upon a rough, pebbly piece of ground,

looking just like a sea beach, and close to a bridge, where were seven or eight, if not more, of the ruderales growing. I left three or four that were in seed as a stock, yet last year no fresh ones had sprung up, and probably a long time may elapse ere it appears for botanical inspection again in that place.

Cardamine impatiens is in some districts a rare plant, and generally affects hilly spots; but three years since a new embankment of earth was raised on the side of the river Teme, near Powick, in this county, with the view of protecting the meadows from sudden floods, and the following year *C. impatiens* grew most luxuriantly and profusely on and about this mound. Yet last year, on visiting the spot and looking closely about, not a plant of the *impatiens* was anywhere observable.

I have myself been called to account by several friends for the record of some plants in my 'Botany of the Malvern Hills,' which they could not find in the spots there designated. It is really very hard to be held responsible for the vagrant habits of plants; but let investigators get upon their trail, and take them up if they can. One vagabondizer I at least detected before it had got very far away. *Erodium maritimum* grew for some years to my observation on a rock at the entrance of "the winding valley" between the North Hill and the Worcestershire Beacon. When I left Malvern, in 1843, the plant was certainly there, where I had often gathered it; but the second year after, it was gone from its position, and I actually detected a new colony two miles from the hill, on the side of the road towards my new residence. They were certainly on my track, and I believe the *Erodium* is now off on its travels again! But in the old station it is no more to be seen.

Littoral plants may remain in an inland county as relics of a past state of things; and this is certainly the case as respects Worcestershire, which, though now out of reach of the tidal wave, had formerly brackish backwaters, more connected with high tides than they are at present. Such are the Longdon marshes. Here *Scirpus maritimus* yet grows, and I have gathered *Gastridium lendigerum* in the same vicinity. Also *Bupleurum tenuissimum* and *Samolus Valerandi* near Worcester; and *Alsine rubra* *β. media* (not distinguishable at sight from *A. marina*), *Glaux maritima*, in great profusion, and *Sclerochloa distans*, on the banks of the salt-water Droitwich canal. Yet a botanist unacquainted with the peculiarities of the county might consider the occurrence of such plants unlikely, and as originating in error. Indeed some of them cannot at all times be found. *Cœnanthe pimpinelloides* appears to me to mark the boundary of a line of backwater

marshes that in past times came up nearly to Worcester, and within three miles of the Malvern chain. Yet this plant, generally so plentiful within its peculiar limit, in some seasons is scarcely to be met with, and a "wandering botanist" happening to come at such a time, might feel distrust as to the occurrence of the plant at all in the vicinity.

Flowers indeed, under particular conditions, seem to *swarm* like insects, and their assembled splendours are seldom to be seen again under precisely similar circumstances. I remember being in Wyre Forest, more than fourteen years ago, with my acutely observant friend the Rev. Andrew Bloxam, when the glades of the forest were most splendid with innumerable flowers of the elegant *Cephalanthera ensifolia*, indeed so brilliant an exhibition I scarcely ever saw; and hundreds of plants might have been taken without being missed from the scene. But on my last visit to the forest, in 1847, with some friends, who had hoped with myself to see similar beauties, the scene was so deplorably changed, that, though precisely at the right time of flowering, our utmost efforts produced only two of the *Cephalanthera*, after a long search. No doubt the felling of portions of underwood on forest ground has a good deal to do with the appearance of plants, which are completely choked by the growth of a dense mass of shrubs; and the particular spot where some rare plants grow may lie blocked up in this way for many years. The late Mr. Moseley sent *Festuca sylvatica*, from Shrawley Wood, to Sir J. E. Smith, reporting it as not rare in the wood, but only springing up and flowering when the coppice was cut down. I have a specimen of the plant from Shrawley, by the kindness of Miss Harriett Moseley, not now residing there; and yet, strange to say, though our Worcestershire botanists have again and again investigated the wood, all have hitherto failed to re-discover the plant, which yet doubtless is still lurking there.

Drainage changes, however, really banish plants altogether, unless a deep ditch or pool happens to be left where they can take shelter, secure only in utter obscurity. If this is not the case they perish, and the record of their former existence only remains; and yet perhaps that ought not to be forgotten, as telling of what the country once had. *Hypericum elodes** is mentioned by Dr. Stokes, in the edition of *Withering* I have before adverted to, as growing on "Birmingham Heath," where enclosures and buildings have long destroyed it; yet still almost within the dense smoke of Birmingham, on Mosely

* This plant is now entirely absent from Worcestershire.

Wake Green, and within the boundary line of Worcestershire, *Osmunda regalis*, *Equisetum sylvaticum*, and *Rubus suberectus* grow ; as, though the green is now entirely enclosed and cultivated, a few plantations have been made where these bog plants have found a last shelter. Such is not the case at Feckenham Bog, often mentioned by Purton, and where, within thirty years, peat was cut and stacked for fuel by the poor cottagers living there. The 'Midland Flora' of Purton records *Cyperus nigricans* and *Cladium Mariscus* as denizens here, with other bog plants ; but drainage has done its worst in this locality, and not only is the "bare-worn common" denied to the cottager, but the bog is cut off from the Worcestershire botanist. Bromsgrove Lickey, cut up and furrowed by the "greedy plough," has lost almost all its rarer plants ; and last year when the Worcestershire Naturalists' Club met there, they were taken to the spot where it was *remembered* only, that *Vaccinium Oxycoccos* once grew. The truly indigenous plants of a district will, however, maintain their ground obstinately, and should not be easily given up as lost by the botanist. *Campanula latifolia*, almost eradicated at Malvern by the recent enormous extension of buildings there, still keeps possession of the bank of a *once* wild pathway ; and the elegant and mostly rare *Carex Pseudo-cyperus* is abundant on the side of the road from Malvern to Worcester, about Newland, where little pools and ditches, once open to the great extensive Chace, yet remain under shelter of the hedges. A little—*very little*—bit of heath land at present exists only two miles north-west of Worcester, the relics of a former "Broadheath," where *Erica Tetralix* still nestles ; but so rare is it now in the west of Worcestershire, that in the whole district from Worcester to Tewkesbury southwards, and from the former place to Ledbury, Herefordshire, westwards, which I took as the limits for the plants of my Malvern Flora, I could never find a single specimen of any *Erica*.

Certain very rare species may, though truly wild, be limited to such narrow spaces, that without accurate designation of their *precise* position, the explorer may be easily baffled in his efforts to detect their retreats. Thus Braunton Burrows, Devonshire, has been given as the habitat of *Scirpus Holoschœnus*. But when I was at Ilfracombe, on making an excursion to these Burrows, I found an extent of waste sandy and marshy ground, disposed in flats, hummocks, and hollows, to the amount of more than two thousand acres, and bounded on one side by the sea. I made many traverses across it in vain ; and some botanists, disappointed like myself, reported it as lost at the station, and I saw it so stated in a botanical publication. A second

visit, though fruitful in some respects, failed to reveal the *Scirpus*; until passing over the Burrows a *third* time, on my passage to the Popplridge, I quite accidentally encountered the rarity that had so long eluded my search. Any reader of the 'Phytologist,' then, who may wish to visit Branton or Ilfracombe in future, may take the benefit of my experience. Let the explorer keep to the *southern* side of the Burrows, within a quarter of a mile of the twin lighthouses, but farther from the river than they are; here he will come upon a line of little pools and marshy hollows, abounding with *Teucrium Scordium*, *Anagallis tenella*, &c., and two of which were almost filled up with aquatic mosses and a profuse growth of *Epipactis palustris*, finely in flower at the time of my visit. Following the line of these damp hollows *towards the sea*, they terminate in a little marsh impinging upon the sands, and here the *Scirpus Holoschœnus* grows luxuriantly, forming almost a close thicket when I was there, four or five feet high, but entirely confined to a space about twenty yards in length. As the village of Branton is itself three miles off, a field botanist, not guided to the spot, might make many a ramble on the northern side of the Burrows, and about the central sand-hills, without any attendant success.

Mr. Babington, in his 'Manual,' has reported *Astrantia major* as located "between Whitbourne and Malvern." Whoever should take a ramble between Whitbourne and Malvern, would certainly find a very pretty country up hill and down dale for some eight or nine miles; but the chance of coming upon the *Astrantia* from the locality recorded, is so little, that I have in vain urged our local botanists to attempt its capture. Yet no doubt it was seen, and may exist still, though how it got there may be another question.

Some plants will establish themselves plentifully in places where they appear, to an observer, to have been placed by Nature at *the time of observation*, but disappearing afterwards, a question arises as to the deduction from the first recorded fact. About twenty years ago, I landed at Swansea, from Bristol, on a lowering evening, and after a hasty refreshment in the town, ran down to botanize on the sandy beach. Gloom hung upon everything, and a rhimy fog advancing with the sullen sounding billows, threw a murky gloom upon the deepening twilight. I however maintained my ground till it was quite dark, and, among other things unquestionably indigenous to the spot, gathered various specimens of *Delphinium Consolida*, two of which are now in my herbarium. I consequently reported the *Delphinium* as "truly wild on the sandy shore of Swansea Bay," and

I think it is so mentioned in Mr. Watson's 'Botanists' Guide.' But Mr. Flower not observing the plant when *he* botanized at Swansea, has by implication suggested a doubt as to my observation. Yet the investigating botanist cannot be answerable for the *continuation* of what, nevertheless, has *bonâ fide* met his view. I left Swansea early the following morning; and when, in 1839, I was at the town again, I found the beach where I had botanized before covered up with ballast, and a painted invitation prominent, inviting "rubbish" to be thrown there. So I fled from the spot in dismay! *Anchusa semper-virens* is another of those fugacious species that often appear in sequestered dingles, seeming as wild as anything else then apparent, and I have gathered it at Lancut, near Chepstow, as well as by the side of the river Mawddach, some distance below Dolgelle, Merionethshire; but I by no means wish to induce any one to search these places, as my experience convinces me the *Anchusa* shifts its quarters year after year. *Onopordum Acanthium* and *Silybum marianum* are known to every botanist as appearing and vanishing with singular uncertainty, ever moving from place to place.

Reseda fruticulosa is another casual wanderer likely to lead a botanist a vain chase, if looked after, yet when presenting itself it must be noted down. I once gathered it in Britannia Square, Worcester, not long after the ground had been partially built upon and made a square, and I have also observed it on the sea-coast at Tenby, South Wales; yet Nature perhaps had as much to do with its position in the first locality as the last. I would not undertake to find it in either of the spots named at the present time. *Centaurea solstitialis* once occurred to me among the sand-hills at Barmouth, North Wales, and I gathered several specimens; yet though placed there by Nature it might have no *permanent* abode on the spot.

Saponaria officinalis is a plant that frequently abounds excessively in some places for a time; and thus I have seen it on the banks of the Usk, at Crickhowel, and on the Severn above Worcester, and in various other spots, even on the rocks at Malvern; but conspicuous as it is, I have often lost it from its wonted haunts.

I could easily name other wandering plants that would be familiar to the knowledge of botanists, and instance notices of their appearance and sudden vanishing. But too much on one subject at a time may be tiresome, and I have penned enough to convince the candid reasoner, that the present defection of any plant from its old habitats does not invalidate *former* record and observation.

Though these remarks have been evoked by the statement of Dr.

Bromfield, in his Catalogue of Hampshire Plants, yet I mean no captious application to that gentleman in particular, of want of faith in other observers, and I think his labours to elucidate the Vectian Flora highly meritorious; but botanists perhaps too generally indicate scepticism in former observations, when not tallying with their own learning or experience; and thus lookers-out, though not always complaining, have found themselves served with an unexpected writ of error, which, if allowed on every pretence of doubtful authority, would suppress fact and nullify truth. I think, too, before a contemporary botanist is publicly declared to be in error, some communication should be made to him, when possible, on the point in hand. Much advantage would result from this mode of proceeding, and the enquirer would seldom find his trouble thrown away. I have myself often been applied to by personal strangers on facts open to elucidation, and mutual satisfaction has in most cases resulted from the application.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
April 7, 1849.

Notice of the 'Letters of Rusticus on the Natural History of Godalming.' London: Van Voorst. 1849.

KNAPP'S 'Journal of a Naturalist' and White's 'Natural History of Selborne' are equally original books, although the records preserved by White without doubt led Knapp into a train of similar observing. There is great similarity about these books, the same freshness, the same absence of book-making, the same truthfulness of observations, and, we regret to say it, the same weakness in favour of hypothesis. White discriminating between the willow wrens, or describing the insertion of the peacock's train, is altogether an abler and a more philosophic man than White contending for the hibernation of the swallow, or imagining a hedgehog attacking the tap-root of a plantain, and eating it to the crown as we eat a radish. As far as *observations* go, Rusticus is an author of the same kind, but he has no hypothesis—no speculation: his writings are simple narratives of what he sees; and on this account, and also because such kind of writing is now all but extinct, we think them peculiarly valuable. DeGeer, Reaumur, and others of the good old school are vividly brought to mind while perusing his pages, and we prophecy a rich harvest to compilers from so rich a source.

It was a morbid fancy of Knapp's to remain incognito: we know not whether he subsequently avowed the authorship of the 'Journal.' Our author has a similar fancy. His object in preserving the pseudonym is not very apparent. The veil he wears is so transparent that no one will mistake the man. Every page of the work evinces a thorough knowledge of the locality; such a knowledge as can only be acquired by long residence: an intimate and friendly acquaintance with the inhabitants; a keen relish for and proficiency in field sports; a complete acquaintance with the several branches of Natural History, Zoology, Botany, and Geology; and, finally, the possession of a fluent and highly graphic pen. Godalming must be peculiarly rich in good neighbours, good sportsmen, good naturalists, and good writers, if there is any difficulty in laying a hand on the shoulder of Rusticus and saying "thou art the man."

The volume has found such favour in the eyes of the critics, and the extracts have been so voluminous, that it is difficult to select a page that has not been already reproduced in most of our leading journals: we select the following as not yet hackneyed, we presume because not considered equally striking with the rest; but there is something peculiarly agreeable to us in its truthfulness and unassuming simplicity.

"In many places among our little hills, we have deep hollow sandy lanes, with steep banks, and great thick hedges on each side a-top; hedges run to seed, as it were, and here and there grown into trees—gnarled oak, bushy rough-coated maples, and so forth—trees, in fact, that, stretching their arms from both sides of the way, shake hands over your head, and form a kind of canopy of boughs. In some spots the polypody, twisting and interlacing its creeping scaly stem with the tough half-exposed roots of hazel, maple, oak, and hawthorn, grows in such luxuriance and profusion, that its gold-dotted fronds hang by thousands—aye, hundreds of thousands—over the stumps and roots, forming the most graceful of coverings. Here and there are great tufts of hart's-tongue, with its bright, broad, shining, wavy leaves. Here and there, where water has filtered through chinks in the sand-stone, so as to keep up a streak of moisture down the bank, we have lady-fern and a host of mosses. Here and there, in holes—little cavernous recesses—the face of the damp sand or sand-stone is powdered over with a diversity of lichens. Here and there the lithe snake-like honeysuckle twines round the straight, upright, young stems of the nut-tree, cutting deeply into their substance, and forcing them out of their stiff propriety into strange corkscrew forms:—

up it goes, and getting above the heads of its supporters, spreads its own sweet laughing blossoms to the sun. Here and there is a dense network of the wild clematis, clothed with downy seeds—a plant so loved by Scott, that, with a poet's license, he transplanted it from our warm hedgerows to the cold, rocky scenery of Ketturin and Venue—a botanical blunder which few of his readers will detect, and none criticise severely. I love these lanes, because Nature has so long had her own way in them; and where Nature is left to herself she always acts wisely, beautifully, and well. There is not a foot of surface in these old hollow ways but has its peculiar charms.”—p. 3.

Mr. Salmon has given an admirable summary of the botanical features of Godalming and its vicinity at page 131, interspersing a vast number of localities for the more interesting plants, together with admirable observations on the geological and other natural features of the district where they occur. We rejoice to hear of the success which has attended the publication of this truly pleasant volume.

G.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 504).

Thrincia hirta. On pastures, heaths, gravelly banks, fallows, &c.; common in the Isle of Wight and doubtless over the county also. A variety, the leaves of which are almost perfectly glabrous, shining, and firmer in texture than usual, is frequent on the short turf of Freshwater Down, above Alum Bay, &c.

Leontodon hispidum (*Apargia hispida*). In dry meadows, pastures, and on gravelly banks, &c., frequent.

Oporinia autumnalis (*Apargia autumnalis*). In meadows, pastures and on dry banks, &c.; frequent over the county and Isle of Wight. Var. Leaves dark green, deeply runcinate pinnatifid, very hispid all over, with rigid, simple hairs; scapes spreading, depressed or ascending. In a very elevated chalky corn-field above Sandown Bay, towards the Culver Cliff, in plenty, August 3rd, 1843. A remarkable form, almost hoary from the copious hairs which clothe both sides of the leaves, but are most abundant along the midribs underneath.

Tragopogon pratensis, var. *minor* (*T. minor*, Fries). In meadows, pastures, by way-sides, borders of fields, woods, and along hedges; not uncommon in the Isle of Wight, though seldom in any quantity together. By the foot-way over the fields from Shanklin to Cook's Castle, and in pastures betwixt Shanklin and Appuldurcombe, not unfrequent. In the Lenten Pit, by Carisbrook, and a troublesome weed on the grass plats at Thorley Vicarage, also here and there in various parts of the island. Boarhunt (pronounced Borrunt) Lane, near Fareham; Mr. W. L. Notcutt (also the var. *minor*). Probably frequent throughout the county. In all the specimens that have yet come under my notice in Hants the involucre has much exceeded the florets in length, which is the only character, so far as I can discover, on which the *T. minor* of Fries is founded, an insufficient one surely taken alone, seeing that in the true *T. pratensis*, *L.*, the involucre is sometimes equal to, sometimes shorter than the florets; why, then, may they not occasionally exceed them, and why should not the variety of *T. pratensis*, with the shorter involucre, be also a species, since their abbreviation is accompanied by a difference in the achenes, which are "quite smooth?"

†? ——— *porrifolius*. In similar places with the last, but rare, and probably not indigenous to this island and county. A solitary specimen picked at Sea View, near Ryde, some years since, by Miss Theodora Price!! Scattered here and there in fields and on hedge-banks about Sandown; Miss S. Lovell, 1846! Amongst grass at Niton; Mr. Curtis, Icon. in Brit. Entom. ix. t. 433 (ad exemplar ex loco delin.). I have never fallen in with the purple goat's-beard in this island myself, but unless one happens to be abroad betimes, the chances of stumbling upon it are not great, as the flower-heads open very early, and close again for the day before noon, after which the plant may pass for the commoner *T. pratensis*, or escape notice altogether, should the larger heads and the greatly more thickened peduncles fail to attract attention. I found it very abundantly ten or twelve years ago at the back of a house at Hythe near Southton, but I should say doubtless escaped from some garden. Meadows near Odiham church, plentifully; Mr. J. Nash, according to Mr. Pamplin, in New Bot. Guide (wild?). Often found growing on waste ground at Anglesey, but only the outcast of gardens; Miss L. Minchin.

Picris hieracioides. On banks, by road-sides, in waste ground, along hedges, the borders of fields and woods; very common in various parts of the Isle of Wight, though not generally diffused over its surface, being mostly confined to the calcareous districts of East

and West Medina. Plentiful along the road from Shanklin to Bonchurch, about its greatest elevation. In Luccombe Chine and East-end, and thence common all along the Undercliff about Ventnor, Steephill, St. Lawrence, &c. Frequent at Arreton, and plentiful at the entrance of Shorwell from Newport. About Brading, Yaverland, Cowes, Freshwater, and many other places. Very rare near Ryde, a few plants observed on the Newport road; almost, if not entirely wanting on the green sand. Apparently not uncommon in mainland Hants. Just out of Fareham on the way to Porchester, and in Maindell chalk-pit; Mr. W. L. Notcutt!!! Abundant a short distance from Bishopstoke on the road to Fair Oak. Selborne.

Helminthia echinoides. In woods, thickets, waste places, borders of fields, and by road-sides; a much more social and far more widely distributed plant than the last, occurring abundantly and often in great profusion over most parts of the Isle of Wight, both on the tertiary and cretaceous deposits, but unlike the *Picris*, evincing a preference for stiff clays rather than for the chalk, though accommodating itself with facility to the latter. Our damp clayey and chalky woods and thickets are sometimes quite filled with it, and the great scabrous root-leaves, spreading in flat circular tufts or rosettes, are very conspicuous all the winter long in these, and on hedge-banks and waste ground, fallows, &c. Common, I think, in most parts of the county. Porchester Castle, Newlands, the Salterns; Mr. W. L. Notcutt. Mr. Rawkins, late of Hardingshoot farm, tells me that sheep are partial to the early radical herbage of this very rough plant, which in that neighbourhood at least is known by the incorrect name of borage.

Lactuca virosa. On dry hedge and ditch-banks, chalk cliffs and waste ground; very rare in the Isle of Wight. On a hedge-bank between Wroxall and Newchurch, July, 1844; Miss Hadfield. Through the kindness of Miss H. I possess a part of the only specimen gathered by her, given to me last year, since which I have had no opportunity of visiting the locality. From not being aware of its rarity here, Miss H. is unable to say whether other specimens were growing with that gathered as an example for the herbarium; the plant must be of extremely rare occurrence in this island, since I have myself never fallen in with it; and as regards the mainland I have great reason to fear that my notice of it in the Supplement to the 'New Botanist's Guide,' Vol. ii. p. 568, as growing amongst bushes on the shore between Southampton and Netley, and in other places about Southton, was given on hasty and imperfect observation, and should be expunged till better authenticated. At the same time,

there is every reason to expect this species in the county, as well as *L. Scariola* and *L. saligna*, more particularly the latter, which should be looked for on dry chalky banks, in lanes and salt-marsh ground, it being found on either side of us in the contiguous counties of Sussex and Dorset.

Lactuca muralis (*Prenanthes muralis*). On old walls, rocks, moist, shady, stony banks, in woods and thickets; not very uncommon in the Isle of Wight, usually where the soil is calcareous. On Quarr Abbey walls, sparingly, and under the old garden-wall at Knighton House. Under the rocks in Hatchet Close and Cowpit Cliff woods near Shanklin, frequent. Road-side at Apes Down. In Bloodstone, Slucombe and other copses here and there in considerable plenty. Extremely common in the deep, hollow lanes about Selborne, and no doubt in many parts of the county.

Taraxacum officinale (*Leontodon Taraxacum*). In meadows, pastures, waste and cultivated ground, lawns, &c.; universally abundant. Several varieties of this polymorphous plant, that is found half over the globe, occur with us, which it is unnecessary to specify. The marsh form, with narrower, less runcinate, sinuately-lobed leaves, and the involucreal scales more or less erect or appressed (*Leontodon palustre*, *Sm.*), is frequent in wet places.

‡ *Crepis setosa*. In cultivated fields amongst clover or lucerne; very rare? and certainly introduced. In a clover-field near Gurnet farm, sparingly, July 29th, 1845, where it was first detected by Dr. Salter, on a botanical excursion I made with him on that day!!! Amongst clover in a field at Wootton, occupying the angle formed by the old Newport road and the new cut to Cowes, in abundance, 1846; *Id.* This is quite a southern plant, scarcely indigenous to any part of Europe north of the Alps, but of late years has obtained a transient footing in several parts of England and Scotland, by importation unquestionably with foreign grass-seed.

—— *virens*. In dry pastures, fields, waste and cultivated ground, on walls, roofs and banks, &c.; everywhere abundantly. A stouter form of this most variable plant, and with larger flowers, grows on the chalk along the road between Carisbrook and Swainston, which might be almost mistaken for *C. biennis*, but wants the essential characters of that species, which, with *C. taraxacifolia* and *C. fœtida* (*Barkhausia fœtida*, *D. C.*), are likely to prove inhabitants of this county or island. Nor, perhaps, ought the rather northern *C. paludosa* (*Hieracium paludosum*, *L.*) to be deemed a very improbable addition to the Hampshire Flora, since the researches of recent

observers have greatly extended the range of species before thought to be confined within much narrower limits; many northern plants have been detected in the south, and southern ones farther to the northward than they were ever supposed to reach till lately.

About ten or twelve years back I found in this island a remarkable specimen of *C. virens*, in which all the root and inferior stem-leaves were spatulate, very obtuse, and nearly entire, being slightly repand and denticulate only, and on very elongated footstalks, the upper leaves elongate-oblong, slightly denticulate and clasping, with very minute auricles. The late Mr. David Don, and other botanists to whom I showed it, could only refer it to the present species.

Sonchus oleraceus. In waste and cultivated places, garden ground, about hedges and road-sides, in woods, fields, &c.; everywhere.

——— *asper*. In similar situations with the last, and nearly as common. Well distinguished, I think, from the foregoing, by the character of the seed (a part less liable to variation than most others), and by the peculiar curled or rounded auricles of the leaves, like the volutes on the chapters of Corinthian or Ionic columns, so different from the flat, acute and arrow-shaped bases of the leaves in *S. oleraceus*, not to mention that the root-leaves of *S. asper* are winged to their junction with the stem.

——— *arvensis*. In cultivated fields amongst corn, turnips, &c., especially on a dampish soil; frequent: also, but more rarely, on ditch-banks and in moist hedges.

Hieracium Pilosella. On dry short pastures, heaths, banks, walls, rocks, and waste, barren places; very common over the county and Isle of Wight. The var. β . *Peleterianum* will probably be found with us, but I have not yet remarked it in the county.

——— *vulgatum* (*H. sylvaticum*, Sm.). In dry woods and thickets, on walls, banks, and sandy, gravelly, or chalky pastures, but not common, at least in the Isle of Wight. Plentiful in East Standen Copse, near Newport, mostly by the path-side through the wood. Sparingly in a large gravel-pit by the Ryde and Newport road, at the turning off to Fishbourne. In Symington Copse, near Northwood church. In the sandy lane betwixt Morton farm and the Grove, and in several other places in the island. Gathered on the road from Bordean to Froxfield (on Bordean or Stoner Hill), 1848. Wolmer Forest and rocky lanes about Selborne; Dr. T. Bell Salter!!! Fareham Common; Mr. W. L. Notcutt.

——— *boreale*. In woods, thickets and on hedge-banks, but not common in the Isle of Wight. Abundant on a high, sandy bank

in Alverston Lynch, near Newchurch. By the road-side from Ryde to Newport, a little before coming to Stapler's Heath, but rather sparingly. In Firestone Copse and Guildford Lane. Probably not unfrequent in mainland Hants. Common in woods and hedges between Bishopstoke and Fair Oak. Fareham Common; Mr. W. L. Notcutt (H. Sabaud.).

Hieracium murorum will, there can be little doubt, turn up eventually in this island or on the mainland of Hants.

——— *umbellatum*. On sandy or gravelly heaths and commons, hedge-banks, in groves, thickets and bushy places; in many parts of the Isle of Wight abundantly. Plentiful on Lake Common and (before its enclosure) on Royal Heath. On heathy ground about Niton and Whitwell, as on Yarbury Hill, &c. Near Kingston, and in various other places. At Selborne, in the deep, rocky lanes. Fareham Common; Mr. W. L. Notcutt. Var. β . Leaves broader, with large and sharp teeth pointing forward. In the hollow on the road between Blackwater and Rookley. On Apse Heath, frequent. Most likely a frequent species over the county, but the less one has to do with this most troublesome and unsatisfactory genus the better. Happily the botanists of the south are spared the task (pleasant enough, however, to some) of unravelling the web of synonyms only to become worse entangled and perplexed amid the verbosity of ever-shifting and changing nomenclature.

I found, July 13th, 1837, in a wood near Yarmouth, two specimens of a plant which at that time appeared to me to be the *H. molle* of Jacquin and of E. B. tab. 2210, referred in the Manual to the *Crepis succisæfolia* of Tausch,* native to the north of England and south of Scotland in woods. Unfortunately I neglected preserving the specimens for future reference, so cannot with absolute certainty give this northern species a place in the Hampshire flora, though pretty well persuaded of the correctness of the fact of having found it. I hope

* The *C. hieracioides* of Waldstein and Kitaibel. The name given by these authors is preferable to that of Tausch's, as expressing clearly the remarkable hawkweed habit, more manifest than the resemblance of the leaves to those of Devil's-bit (*Scabiosa succisa*), but priority, that grand arbitrator in the wordy disputes of botanists, has doubtless pronounced judgment in favour of Tausch. The English name "suc-cory-leaved" is one of those odd coincidences in sound which look like mistranslations of blundering ignorance, without being really such, of which we have two notable instances in *Ranunculus sceleratus* and *Euphorbia hiberna*, rendered respectively celery-leaved crowfoot and Irish spurge, for reasons, as is well known, quite unconnected with their Latin specific titles.

such botanists as may visit this island at the proper season will aid me in its rediscovery at Yarmouth.

†*Xanthium strumarium*. In low, rich, waste ground, on ditch-banks and by road-sides. Found by Ray about three miles from Portsmouth on the road to London. (Syn. Stirp. Brit. i. p. 140). I am not aware of this plant having been found in Hants since Ray's time, but as specimens occur now and then about London, in Kent, Surrey, and other counties of England in our own day, there is every chance that it will again turn up in the county if specially sought after. It would seem to have been somewhat less rare in former times than at present, as several stations are given for it by Gerarde and Parkinson; it can hardly, however, be regarded but as an introduced foreigner, imperfectly naturalized and extremely evanescent, though a very cosmopolite by nature, claiming no particular country as its native home, but, Jew-like, settling in preference where the climate is warm and the land rich.

Jasione montana. In sandy or gravelly fields and pastures, on dry banks and heathy, hilly places; not unfrequent in the Isle of Wight and I believe over the entire county. Common in and about Shanklin Chine and on the banks of slipped land below the cliff to the northward of it. Common about Sandown, Blackgang Chine, and on most sandy heaths throughout the island. In the Lith, Selborne, at Wolmer and Shortheath; Dr. T. Bell Salter. The plant has a hot, acrid taste and scent, like most of its natural order. Dr. Macreight (Manual of Br. Bot. p. 146) mentions a variety, the *β. maritima*, D. C., as growing on the sea-shore near Portsmouth, having very hairy, prostrate stems, short, cauline leaves, hirsute calyx, and outer involucre bracts obtuse.

Phyteuma orbiculare. On dry, hilly, chalky pastures, downs and banks, sometimes in woods; common in various parts of mainland Hants towards the centre and interior of the county, at a distance from the sea; rare near the coast, and not found in the Isle of Wight. On the chalk about Old Alresford; Mr. Wm. Pamplin in New Bot. Guide. In Bordean Hanger, thirty-three inches high; Miss E. Sibley. Glebefield, and in a lane at West Meon; *Ead.!!!* Upon tumuli on Old Winchester Hill, a few miles to the S.W. of Petersfield; *Ead.!!* Sutton Scotney, near Andover; Mr. Wm. Whale! Headbourne Worthy, about two miles from Winton; Dr. A. D. White. Down between Chilbolton and Crawley, about seven miles from Winton; *Id.* Warnford; Rev. E. M. Sladen. Catherington; Miss L. Minchin. Meonstoke and (var. with white flowers)

about Buriton; Rev. Messrs. Garnier and Poulter in Hamps. Repos. Chalky hills by Maple Durham; Merrett's Pinax, p. 104. I have no station to record for this plant in Hampshire within many miles of the coast, but I have gathered it within a very short distance of the sea in the Earl of Burlington's park, near Eastbourne, Sussex, and at a very slight elevation, if any, otherwise the species is one of the hill country, preferring the summits and sloping sides of our lofty chalk downs to the woods and banks of the low grounds. The climate of the Isle of Wight is doubtless somewhat too maritime, or, in respect to temperature, though not to longitude, too westerly for a genus so eminently eastern in its distribution as is *Phyteuma* and (with a few exceptions) the order to which it belongs. The range of this species in Britain is indeed singularly circumscribed, and its polar limit remarkably abrupt; for though so frequent and abundant on the chalk ranges of Kent, Sussex, Surrey and Hants north of 51° I am not aware that a single locality is on record for this plant on the continuation of the same cretaceous system beyond $51^{\circ} 30'$, or the latitude of London; some dozen of miles, or perhaps less, totally terminating its progress northward. To the westward it seems almost as rigidly limited. It has, I think, been found of late years in East Wilts (Devizes?), but fails wholly in Dorsetshire, and is apparently wanting throughout the south-western or New Forest district of this county, where the vegetation commences to assume an occidental character, and the soil for the most part ceases to be calcareous. A beautiful plant in its wild state, the globose heads of curiously incurved flowers of the deepest and richest ultramarine are stated in E. B. to be less conspicuous in cultivation, which one would not have suspected, as it varies greatly in size and luxuriance on its native hills, and in the depth of blue in the flowers, which are sometimes white. The (in Britain) still more eastern, though on the continent more northern *P. spicatum*, should be looked for in the woods of East Hants, as there is a possibility its range may ultimately prove co-extensive with that of the present species. In June, 1835, I spent two entire days in seeking for this plant in the woods about Mayfield and Waldron, having none but general indications to the localities, when I at last came upon it in plenty in a copse which had been recently cut on the Hole farm in Waldron, growing with wild columbines (but not with *Actæa*) just as Pollich describes it as commonly doing. The tall stems of the *Aquilegia* caught the eye from afar, and I hailed their appearance as an omen of the good success which a few moments afterwards crowned a search I was on the point of giving up as hope-

less. The plant is unquestionably truly native over a considerable tract of woodland, and is indigenous to most parts of central, southern, and even of northern Europe (Denmark and Livonia). Its discovery in Sussex only within our own remembrance would give a handle to the inference of its having become naturalized merely, but for the fact of hundreds of parallel instances of plants far more conspicuous than this escaping notice in well-explored districts in a way still more difficult to understand and account for, as *Erica ciliaris* on Wareham Heath, *Bunium Bulbocastanum* in Herts and Cambridge-shire, &c., &c.

Campanula glomerata. On dry chalky hills, banks and pastures, sometimes in woods and hedges; more frequent on the mainland of Hants than in the Isle of Wight. On the downs about Freshwater and Alum Bay not unfrequent, as near the Needles Hotel and light-house, but scarcely an inch high, probably from being browsed down by the sheep, and mostly bearing only a single flower. On the field-banks above Alum Bay it grows tolerably luxuriant and tall. Very abundant on the summit and north-eastern slope of Bembridge Down, with flowers considerably aggregated. Most abundantly, but very dwarfish, on the down between Calbourne and Brixton, where I have picked a specimen or two with white, and others with pale blue flowers. Finer and taller in the sheltered valleys of mainland Hants. Bordean Hill, West Meon, &c. At Appleshaw. In Murden Lane, about two miles from Hursley, in great plenty on chalky banks on both sides of the lane; Mr. Wm. Whale. On Primrose Hill, Andover; *Id.* Maindell chalk-pit, Fareham; Mr. W. L. Notcutt !!! A very variable plant, out of which at least a dozen false species of its own genus and one gentian have been manufactured! The latter marvellous transmutation (*G. collina*, *With.*) is neither more nor less than the above-mentioned dwarf, single-flowered state of *Campanula glomerata*, facsimiles of which, as represented in Pl. xi. fig. 8, of the 'Arrangement of British Plants,' 3rd edit., I have often gathered on our high downs, at the very zero of degeneracy from the ample development which through cultivation enables it to rival the most admired of our border perennials.

———— *Trachelium*. In dry, chalky and hilly woods, thickets, hedges, and on bushy declivities; very common in mainland Hants; on the Isle of Wight confined principally to the interior central parts of West Medina, scarcely found in the eastern hundred. Abundant in woods at Swainston and Rowledge. Abundant in the Tolt Wood, and common elsewhere about Gatcombe in fields and hedges. About

Shorwell, sparingly. In Lorden, Slucombe, Westridge, and other hill-side copses on the chalk, in plenty, and in the first of these I have gathered it with flowers of a pure white, August 23rd, 1839. Extremely common around Petersfield, in woods at Bordean, about East and West Meon, &c. Most abundant and luxuriant in woods, hedges and close lanes about Clanfield, the flowers often as large, or nearly so, as in *C. latifolia*, and of as deep a blue. Frequent about Selborne and at Appleshaw. Andover; Mr. Wm. Whale. Maindell and Whitedell, near Fareham; Mr. W. L. Notcutt!!! and generally distributed over the county, but in this island everywhere avoiding the coast and flat country, even when the chalk extends to them. Its distribution in the island exactly accords with that of the bryony and buckthorn, as remarked under those plants. A stately ornament along our thick hedge-rows and retired green lanes in the latter half of summer. The true Canterbury bells of our gardens (*C. Medium*, L.) I have twice found growing spontaneously on bushy banks at Brading and Bonchurch, but in small quantity, and without doubt as strays from cultivation.

Campanula rotundifolia. In dry sandy fields and pastures, on heaths, walls, banks and chalky downs; abundantly over the county and island, particularly in elevated situations. This common but graceful and delicate species is of unusual luxuriance on sandy fences near the foot of Bleak Down, where I have picked a few specimens with white flowers. On our British heaths and hills the harebell varies but little from the normal type, but on the Italian Alps, as Bertoloni observes, it sports in endless and intricate varieties, giving rise to many false species. I have gathered this plant, so familiar to us all from childhood, on the shores of Lake Champlain, at Burlington, in Vermont.

———— *Rapunculus*. On gravelly or sandy banks, hedges and borders of fields; very rare. "In the pastures and hedge-sides on the north-west of the Moor, not far from the great bog (Petersfield Heath?) near Petersfield;" Mr. Goodyer in Merrett's Pinax, p. 103. I have never seen Hampshire specimens of this plant, and do not know if it be still found in Goodyer's localities. Miss E. Sibley informs me that she once saw or received a specimen from the same part of the county, and as the species occurs rather commonly in certain parts of Surrey, it may well be a native with us also.

———— *patula*. In damp, gravelly pastures, hedges, borders of fields and thickets; rare in Hants, and not found in the Isle of Wight. On the right-hand side going from Bishopstoke Schools to

Fair Oak ; Dr. A. D. White !!! first noticed by the present Dean of Winchester. I find it, though sparingly, in moist field-hedges elsewhere near Fair Oak. About Hurne, near Christchurch ; Mr. J. Curtis in litt. (Icon Brit. Entom. viii. t. 351, from Hants specimens). On a gravelly bank near Bramshot, and in a lane leading thence to Hind Head Heath, 1829 and 1835 ; Mr. Wm. Pamplin in litt. Portsdown Hill (Mr. Robinson) ; Mr. W. L. Notcutt. I hear it is not uncommon in Wolmer Forest, and probably on those of Bere, Alderholt and in the New Forest district.

OBS.—*C. latifolia* has been reported to me as having been found by a lady at Liphook, but subsequent inquiry by my obliging and zealous informant makes it more than doubtful whether an error arising from an accidental transposition of labels has not been committed in this instance. For the present, therefore, we must not venture to enrol this splendid species amongst the floral beauties of Hampshire, but since it has been found of late years in Surrey, and is sparingly distributed in several of the midland counties, there seems no reason for not indulging a hope that it may yet be discovered within the limits to which these Notes and Observations are confined. This is the most western of all the broad-leaved species of *Campanula* (a genus pre-eminently eastern and continental in its distribution), extending into Ireland and the west of Scotland, both which countries are still poorer than England in the plants of the order it gives name to. In the Channel Islands even *C. rotundifolia* fails, and *Jasione montana* becomes local in Scotland. In Sweden, about Stockholm and Upsala, nearly in the latitude of 60°, eight species of *Campanula* are indigenous to the floras of those cities, which in Hampshire, nine degrees farther south, are reduced to five, and for the whole of Ireland to three. In Siberia, the Italian and Austrian Alps, Russia, and other eastern parts of Europe and Asia, the species of *Campanula* are almost innumerable.

Specularia hybrida (*Prismatocarpus hybridus*). In sandy or chalky corn-fields and other tillage land ; pretty general, and often very abundant in the Isle of Wight, so as sometimes to prove an injurious weed to the wheat crops from its quantity alone. Fields above Sandown Bay, about Shanklin, and in various parts of Undercliff, extremely frequent. Sandy fields about Newchurch. Extremely common on the chalk and sand in West Medina, about Cowes, Yarmouth, Thorley, Wellow, Westover, Rowledge, Brixton, Shorwell, and on the sand of the south-west of the island generally, even in very upland situations. Corn-fields about Alresford, &c. ; Mr. Wm.

Pamplin in New Bot. Guide Suppl., the only mainland station I find recorded by others, nor have I noticed it myself, being so common on this side of the Solent, as scarcely likely to draw my attention when seen, being, moreover, a rather inconspicuous plant when not in flower. The deep violet blossoms, which are produced here from the early part of May till August, open only in clear weather, and in many instances, perhaps in most of the earlier flowers, the corolla is either wanting or does not open at all, the seed being, notwithstanding, perfected as usual. I had long since suspected this was the case, from constantly finding fully formed capsules on very young plants at the very commencement of the flowering-season, and from repeated disappointment in obtaining specimens on which the corollas were present and expanded, even during favourable weather. My idea received ample confirmation from observing the same want of a corolla in all the the earlier flowers of *S. perfoliata* of North America, where, from the much greater size of the plant and its flowers, the phenomenon could not fail to attract attention. This species is frequent in most parts of that continent, and abounds in old pastures and cotton-fields in the south and west. In April I could scarcely find a blossom on the many hundreds of specimens I examined, though capsules were produced and ripening in plenty, but in May and June the stems were copiously adorned towards their summits with the large, pale purple, striated flowers; the calyx of the earlier incomplete ones was usually 3-cleft, of the perfect mostly 5-cleft. *S. Speculum*, D. C. (*Campanula Speculum*, L.), the Venus' looking-glass of the gardens, will probably turn up some day in the chalky corn-fields of the south-east of England, since Parkinson mentions it as found in Hertfordshire and Kent in his time, although Gerarde tells us he only observed our commoner species where Parkinson alleges the other to grow, namely, about Dartford and Greenhithe. It seems indeed surprising, since we have the rarer and more local, that we should want the commoner and more diffused of the two European *Speculariæ*; and when we consider how plentiful *S. Speculum* is in all the adjoining parts of the continent, even along the coasts, in Normandy, Belgium, Holland and Germany, we must regard it as another instance of the marked tendency in the species of *Campanulaceæ* to become rare or extinct in a westerly direction and in insular localities. The exactly oval shape, exquisite polish and brilliancy of the seeds, recalling to mind an ancient mirror or speculum, originated the name of one species, to which that of the Paphian goddess was most appropriately joined.

Wahlenbergia hederacea. In damp turfy or heathy pastures, on spongy bogs, moist banks, and bare, humid spots on commons, &c.; apparently very rare in the Isle of Wight. First found by Miss Evelegh, on damp pasture ground at Rookley Wilderness! By the margin of Lashmere Pond at the foot of Bleak Down, but sparingly; Dr. G. A. Martin, 1841!!! Boggy tract on the southern face of Bleak Down. On moory ground not above 400 yards (about west) from Rookley farm, in great plenty, as also in other parts of the same pasture field, abundantly, July 28th, 1844. Near Ashurst Lodge, New Forest; Mr. G. S. Mill in 'Phytologist,' i. p. 92. This beautiful little plant will probably be found not uncommonly in our Hampshire forests, which, from the general nature of the soil in these woodland tracts, are just the places in which it delights. When growing on bare, exposed spots on banks, its minuteness is often its protection from the clutches of the prying botanist, and doubly secure is it in its concealment when trailing its thread-like stems through a bed of moss or verdant turf on the margin of some clear and shallow streamlet. I have not yet succeeded in getting the capsules of this species, which, with the exception of one or two others, are all extra European, and mostly restricted to the southern hemisphere, more particularly abounding at the Cape, and in the African islands of Madagascar, St. Helena, &c.

N. B. — *Lobelia urens* may possibly be found hereafter on heaths along the western borders of the county, seeing that two plants highly characteristic of the occidental flora inhabit the contiguous county of Dorset within a very few miles of the Hants boundary. I allude to *Erica ciliaris* and *Simethis bicolor*. I am not, indeed, certain that the former has not already been gathered within our limits, having heard a rumour to that effect, but which needs to be confirmed by competent authority.

Calluna vulgaris. On barren moors, heaths, in dry, sterile, sandy woods, thickets and pastures; abundantly. Var. β . Hoary tomentose. On Bleak Down and in Youngwood's Copse, near Newchurch, Isle of Wight, in plenty. The prevailing form, and in its most hairy state, at Wolmer; Dr. T. Bell Salter.

Erica Tetralix. On damp heaths, wet, moory ground and spongy bogs; frequent in the Isle of Wight, and doubtless over the entire county. Var. Flowers pure white. Near Newport and at Blackgang; Mr. G. Kirkpatrick. Forest of Bere, New Forest and Isle of Wight; Rev. Messrs. Garnier and Poulter. I found this pretty variety in the island to be not uncommon on Briddlesford Heath, 1841

and 1843, and occasionally on the wettest bogs of the moors around Rookley Wilderness.

Erica cinerea. On heaths, commons and moors, also in dry barren woods, and sterile, gravelly or sandy pastures; most abundantly. The white-flowered variety I found on Ningwood Common, near Yarmouth, in 1841, and it is noticed in the 'Hampshire Repository,' as growing in the same places with a similar variety of the last species across the water.

N. B. — The beautiful southern and western *E. ciliaris* should be carefully searched for on the forest land along the border of Dorsetshire, since it occurs abundantly on the heaths around Corfe Castle, in Purbeck, where I gathered it in 1841, on a botanical excursion to Poole and its neighbourhood with my esteemed friend Dr. Salter, who, though a native of that town, well acquainted with the botanical localities in its vicinity, and gifted with eyes inferior to few in acuteness at detecting new plants on a ramble, was fated to have this fine heath elude his penetrating glance. It was first added to the Dorsetshire flora by W. C. Trevelyan, Esq., a few years previous to our visit, and had been detected some time before in Cornwall, in various parts of which county it is quite plentiful, though it had escaped all the earlier botanists, and most of those of our own time in a way that is perfectly unaccountable; especially when we reflect that Cornwall, from the peculiarity of its vegetable productions, has always been attractive ground to botanical investigators from the days of Ray to the present moment. The history of this heath, and the additions that are being made to the British flora, which seem to increase in number every year, simply because that of observers increases yearly, should teach us never to think any field, however small, has yielded up the last ear into the hand of the diligent gleaner, and that even in our thickly-peopled land, where field is joined to field and house to house till there is no room left, full many a flower will yet be found to have been born and to have blushed unseen hard by, if not amidst, the busiest haunts of men.*

Vaccinium Myrtillus. In dry or stony woods, thickets, and elevated heathy places, also on the highest chalk downs occasionally; not very general in the Isle of Wight, but I believe frequent over most parts of the county. On Shanklin Down. Head Down, near

* The detection of *Cucubalus baccifer* by Mr. Luxford in what may fairly be called the heart of London, namely, the Isle of Dogs, is the extremest case in point that can be cited.

Niton, and on Yarbury Hill. Abundant on the dry, heathy parts of Apse Castle, at America, &c., and on Blackpan Common. The black and rather agreeably flavoured fruit are called here hurtle or hurdle-berries.

Vaccinium Oxycoccus. In spongy, turfy bogs, creeping amongst Sphagnum and other mosses; extremely rare in the Isle of Wight, and apparently nearly as much so in the county generally. In a sphagnous, boggy meadow by the Medina, betwixt Cridmore and Appleford farms, forming part of a tract of peaty bog, known as the Wilderness,* in considerable abundance; August 22nd, 1841. I had not succeeded in finding the cranberry here in fruit, and scarcely even in flower, but on the 27th of September last, Dr. Salter gathered a handful of the ripe berries, which he observed to be in a great measure concealed amongst the Sphagnum, through which, like crimson threads, the stems of this plant delight to trail. In the bogs of Bin's Pond; Rev. G. White. Dr. Salter met a poor woman with a handkerchief full of cranberries for tarts, on Wolmer Forest, from whence he infers that they must be tolerably abundant in some parts of that district. Droxford Forest; Rev. E. M. Sladen.

N. B.—*Vitis Idæa* has been mentioned to me in a list of plants as found in this county, I have little doubt through error or inadvertence, being an unlikely species to grow wild in this part of England even on our loftiest hills. *Andromeda polifolia* may possibly occur on peaty moors and bogs of the forest districts, as it is known to inhabit Somersetshire, near Bridgewater and Glastonbury. It has even been mentioned to me as growing in this island, which must certainly, I think, be a mistake, as I could hardly have overlooked so conspicuous a plant in the very few and limited localities fitted for its production.

Pyrola minor. In mossy (and dry heathy?) woods and thickets; very rare? Found in June, last year, by J. Woods, Esq., on what was once a corner of Romsey Common, but now a fir plantation, in tolerable abundance. Mr. Woods, in a late communication, has kindly indicated to me the exact locality for this species, which may possibly not be very uncommon in the New Forest district. *P. rotundifolia* may be reasonably hoped for in this county, but no species of the genus has yet been discovered in the Isle of Wight.

Monotropa Hypopitys. In woods, groves and plantations, principally in those of beech or fir. Very rare in the Isle of Wight. By

* Called also Rookley or Appleford Wilderness.

the foot-way through the Undercliff (Luccombe Landslip or Eastend) from Luccombe to Bonchurch; Mr. J. Woods, jun. in Bot Guide. I have repeatedly searched the place in vain. In a large plantation of fir and beech (New Barn Hummet) by Calbourne New Barn, but sparingly, July, 1842-43. In the great plantation along the slope of the Down above Westover, in small quantity, July, 1843. In both stations periodical in its appearance. More frequent in natural beech woods on the mainland. A single specimen in a wood at Clanfield, July, 1848. In Bordean Hanger; Miss G. E. Kilderbee! In the beech woods abundantly, as at Avington, between Winchester and Alresford; Mr. Wm. Pamplin in litt. Avington Wood; Dr. A. D. White. Holt Wood (Alder Holt Forest?); Rev. Messrs. Garnier and Poulter in Hamps. Repos. Brookwood Coppice, near Warnford; Rev. E. M. Sladen. Westbury Park, West Meon; Miss E. Sibley. In Selborne Hanger, under the shady beeches at the north-west end; Rev. G. White. In the woods at West Dean, Sussex, the residence of my friend the Rev. L. Vernon Harcourt, where the *Monotropa* abounds, I have gathered specimens fifteen inches high. The entire plant has a strong earthy smell, which has been compared to various and very dissimilar substances, as primroses, bees' wax and vanilla! To myself the odour is most repulsive, and forcibly recalls that given out by moistened rhubarb.

Ilex Aquifolium. In woods, thickets, hedges, on dry bushy or heathy banks and hill-sides, extremely common, and in many places most abundantly, throughout the county and Isle of Wight. More usually seen on this island as a bushy shrub or low tree, the soil apparently not suiting its development; in some parts, however, hollies of considerable bulk are not unfrequent, as on Hillside, by Newchurch, and in the romantic oak and beech glades of the New Forest they may be constantly met with of timber-like size and height.* Amongst the greatest ornaments of the beautiful and picturesque spot called Apse Castle,† are its hollies; many of the trees here bear all

* All around Lymington, Boldre, Brockenhurst, and other parts of the ancient forest precincts, this tree so abounds as to be a distinguishing feature of its beautiful sylvan scenery.

† Apse Castle (so denominated perhaps antithetically as being a place in which a castle never existed, where one *ought* to have stood) is among the many secluded nooks with which the interior of the island abounds, but are nevertheless unknown to the herd of summer tourists who deviate about as much from the prescribed line of coast route, and get over it with nearly the same celerity, as though they were travelling by railroad on urgent business. This is simply a thickly-wooded eminence, about

their leaves flat and quite entire, and when loaded with their berries of vivid scarlet, have a superb effect from the greater breadth of dark green polished surface (reflecting back the sun's rays) they present

one mile N.W. by W. of Shanklin, commanding a fine view, and flanked on one side by a deep ravine or *den*, as our northern neighbours, the Scotch, would call it (we have the same word in many Hampshire names of places, as Bordean, Bramdean, &c.), along whose bottom winds a clear, but shallow brook, overhung by precipitous banks covered with trees and shrubs, the natural growth of the place. Under the eastern side of the hill is the little rude hamlet of America, and at its western base the picturesque homestead of Apse farm, where grows the finest specimen of the Wych elm to be seen in the island.

In medio ramos annosaque brachia pandit
Ulmus opaca, ingens.

The late Lord Yarborough planted the top of the hill with pines (*P. Pinaster*), and caused broad grass walks to be cut through the wood by a winding ascent to the summit, for the convenience of the few that resort to and joy in its cool and green retreats, judiciously leaving all beside for Nature to embellish in her own wild way.

A more delightful scene can hardly be imagined than is offered by this fresh and verdant spot, when on some glorious morning in April or May, the atmosphere radiant with an intensity of sun-light such as no season but spring and early summer exhibits, we tread the solitary mazes of Apse Castle, a blooming wilderness of primroses, wood anemonies, hyacinths, sweet violets, and a hundred other lowly and fragrant things, overtopped by the taller and crimson-stained wood spurge, early purple orchis, and the pointed hoods of the spotted-leaved wake robin, the daisy-besprinkled track leading us upward, skirted by mossy, fern-clad banks on one hand, and by shelving thicket on the other, profusely overshadowed by ivy-circled oak and ash, the graceful birch and varnished holly, beneath which spring the berry-bearing alder, hazel, spindle-tree, the dogwood and guelder rose, with here and there the "bonnie broom," and a mountain ash, slight and airy as a sapling, over all which the woodbine creeps profuse, and the black bryony (*Tamus communis*) loves to twine, displaying its hand-broad, overlapping leaves of translucent green, that, bright and polished as a mirror, dance and glisten to the sun like a descending stream of foliage. Arrived at the summit, what a luxury to recline on the couch of silvered green which the rabbit-grass (*Agrostis setacea*) spreads thickly over the wide pathway, the softest, driest, and most elastic of turf, or stretched beneath the old hollies or birches to listen to the nightingale, that even at noontide is pouring forth from twilight covert incomparable harmony, till returning darkness calls her, unwearied, to take part in the nocturnal concert with her then numerous rivals,

"And all night long her amorous descant sing."

Such botanists as have no objection to prick their fingers in the attempt to loosen, without cutting it, the Gordian knot that binds the brambles together with a tie of sadly disheartening complexity, will find as much of the pleasure and pain attendant on the business as they can desire in the many interesting species or varieties of *Rubus* that flourish in the dell (*vulgo* Tinker's Hole) at Apse Castle.

over the ordinary spiny-leaved variety. The finest hollies I ever saw were at the Lakes of Killarney, I think on Innisfallen Island; as we advance westward this tree acquires greater magnitude and elevation, the cold of a deeply continental climate stunts its growth remarkably; for though found wild in the forests of Prussia when it is sheltered by adjacent trees, it resists with difficulty the winter in the Botanic Garden at Berlin, and even at Vienna I have seen it treated as a greenhouse shrub. The common holly of North America, *T. opaca*, is so much like the European, as to have been thought a variety merely of the latter. The leaves are precisely similar, but of a yellowish green, and opaque, without that polish and lucidity which renders ours so much the handsomer tree. The berries are of a duller scarlet, and the growth of the branches less compact and bushy, whilst the terminal shoots are much shorter, more slender, perfectly ligneous, and covered with a brownish bark like the older wood; whereas in our holly the extreme shoots are much longer, thicker, and succulent, with a soft green or purplish epidermis. This last character, which I do not find noticed by any author, I have verified by constantly repeated examinations of the wild plant over a great range of soil and climate, and found it to hold good without an exception: our present diagnostic formulas are inadequate to the perfect discrimination of these two species. The berries of the holly failed notably in quantity last year, both here and in other parts of England.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
April, 1849.

(To be continued).

BOTANICAL SOCIETY OF LONDON.

Friday, April 13, 1849.—John Edward Gray, Esq., F.R.S., President, in the chair.

Dr. Mitchell, of Nottingham, and F. Dickinson, Esq., of London, were elected members.

Mr. H. Taylor exhibited specimens of *Anemone ranunculoides*, which he found still growing at Abbots Langley, Herts.

Mr. G. Maw presented a specimen of *Linaria supina*, *Desf.*, discovered by him at St. Blazey's Bay, Cornwall, in March last.

The continuation of Mr. Woodward's paper 'On the Flora of Gloucestershire' was read.—*G. E. D.*

On the Flowering of British Plants.

By ISAIAH W. N. KEYS, Esq.

January, 1849. Season very mild. Early in the month, saw primroses which had been gathered by some pedestrians who had availed themselves of the fine weather for a country walk. Noticed several young dandies who are fond of carrying "flowers in their waist-coats" pranked with snowdrops. In the latter part of the month, an old water-cress woman called at my door, having her basket of salad fringed with white scented violets. She had brought them into the town for sale. I did not inquire of the old woman where she procured her violets; but doubtless they were pulled from some hedge. The white variety of *Viola odorata* is, however, very common here in the little garden plots of peasants. Query, were not many of the plants now considered questionably indigenous, on account of their being found in gardens and near dwellings, once truly wild; having been (for some property of use or ornament which they possess) removed, by the invading hand of man, from their native haunts to the spots which they now inhabit? It may be remarked that most of the plants against which the mark of dubiety is fixed, are either of lovely form or agreeable odour, or are invested with poetical interest.

February 11. Weather very fine. *Ranunculus Ficaria* in bloom sparingly. *Salix* unfolding its catkins. In the garden, white violets perfuming the air.

February 13. Fine day; mild. Found, during my walk, an outer coat an incumbrance. Noticed the following plants in bloom:—*Draba verna*: minute specimens, on an old wall near the town. *Thlaspi Bursa-pastoris*, *Senecio vulgaris*, *Bellis perennis*, and *Taraxacum officinale*, by the road-side and in waste places. *Ranunculus Ficaria* was plentiful on the road-side of Chelson Meadow and elsewhere. In the usual habitats in Saltram Woods, *Galanthus nivalis*. *Lychnis dioica*, in the wood; only one plant: this must have been a veteran of the past summer. *Vinca major* sparingly in flower, and *V. minor* abundantly so, all along the banks and pathways through Saltram. *Mercurialis perennis*. *Narcissus Pseudo-narcissus* was in full bud—in some cases on the point of bursting into flower. Gathered two or three small specimens of *Viola canina*. Met with only one primrose. In the hedge on the Plympton road saw four plants of *Potentilla fragariastrum* in flower. *Cardamine hirsuta* was whitening the hedges with its tiny petals; and in many in-

stances stalks not half an inch long were supporting pods of nearly an inch in length. Was surprised to see, in Plympton St. Mary Churchyard, *Angelica sylvestris* in flower. The plants were very stunted—not more than from 12 to 18 inches high. Their precocity was attributable, I presume, to the moist, low, warm, and sheltered *locale* in which they grew. The willows on the borders of the various streamlets I passed were unsheathing their blossoms. Wherever I cast my eyes, *Arum maculatum* was parading its elegant glossy foliage. *Lamium purpureum* in flower. Also, on the old walls of the village, *Cochlearia danica*, *Veronica hederifolia*, and *Linaria Cymbalaria*.

March 4. Fine warm day. Primroses freely in flower in sheltered woodland nooks adjoining Mount Edgcumbe. Also in flower, daisies, *Ranunculus Ficaria* (still sparingly), *Veronica Buxbaumii*, and *Fragaria vesca*.

March 6. *Crepis virens* in flower. Also, on the banks of an osier-bed, *Petasites vulgaris*, accompanied by splendid examples of *Ranunculus Ficaria* and *Caltha palustris*. *Geranium robertianum*. *Tussilago Farfara* (solitary specimen). *Glechoma hederacea* rather copiously scattered on the hedge of a footpath near Plympton. *Chrysosplenium oppositifolium* in flower, in a shady, damp spot.

March 19. Dark and rather cold. Found the following in flower:—*Stellaria holostea*, *S. media*, *Viola odorata*, *Adoxa moschatellina*, *Oxalis acetosella*, *Lamium album*, *Anchusa sempervirens*, *Veronica Chamædrys* (one plant), and *Luzula Forsteri*.

March 25. Took a walk this morning through a luxuriant unfrequented lane, in the parish of Plymstock, about three miles from Plymouth, in which *Viola canina* was abundant and very large. Primroses rather scanty. Saw leaves of *Aquilegia vulgaris*, which I should consider undoubtedly wild in this locality, as it is at considerable distance from both houses and gardens. *Fragaria vesca* frequent.

April 5. Took a botanical stroll in the afternoon. Fine mild weather. Went first to Weston Mills, by way of Milehouse, passing Swilley. Gathered nothing particular on my way. Hedges in low ground thick with *Stellaria holostea*, *Viola canina*, and primroses. *Vinca minor* still in flower. Met with occasional plants of *Veronica Chamædrys* in flower. On the old bridge near the mill, *Draba verna* in flower and fruit; *Saxifraga tridactylites* in flower. On the top of a high wall enclosing a farm-house, *Viola odorata* (white variety), flowers fading. Strange habitat this! On the sides of the wall, miniature plants of *Cochlearia danica*, about an inch in height; leaves

nearly all radical, on long petioles; flowering stem leafless. The flowers were as large as those borne by plants of the ordinary stature. In this neighbourhood grows *Helleborus viridis*; but I was too late for it: it had passed flowering. Primroses abundant in an orchard, and excessively large; in which place I found, *in a hedge*, *Cardamine pratensis* in flower. Saw more of this plant afterwards on the border of a rivulet in Ham Wood. Returned through the wood; at the end of which, on an old wall, found *Sisymbrium Thalianum*,—some in flower, others with nearly ripe fruit. Passed Burleigh, where I saw plenty of *Anchusa sempervirens*, some plants in flower. Gathered, in the course of my ramble, besides those already mentioned:—*Mœhringia trinervis* (saw only a little of this in flower), *Geranium lucidum* (saw only two or three in flower), *Heracleum Sphondylium* (partially blown), splendid specimens of *Asplenium Trichomanes* in fruit, *Cardamine hirsuta* and *C. sylvatica* (query, are these plants really two species? I commonly find the former on the upper and dry parts of hedges; while the latter occupies the damp, lower parts, and the runlets or water-courses), *Veronica serpyllifolia*, *Ranunculus bulbosus* (two or three only), *R. repens* (only one), and *Arum maculatum*.

April 6. *Agraphis nutans* in flower.

April 8. Found the following in flower:—*Geranium molle*, *Sonchus oleraceus*, *Cratægus oxyacanthus*, *Ranunculus parviflorus* (sparingly), *Viola tricolor* (only one or two), *Myosotis collina*, and two or three of the yellow-flowered *Cruciferae*—*Brassica* or *Sinapis*, did not notice which.

April 11. Sauntered through fields leading out of Plymouth to Stoke. Found, in flower, *Fedia olitoria* (small), *Alchemilla arvensis*, *Veronica arvensis*, *Barbarea præcox*, and *Sherardia arvensis* (small and in limited quantity).

April 17. Extraordinary change in the weather: very cold; sleet and hail. On the rocks under the Hoe found in flower (but stunted plants), *Erodium moschatum*. Also, *Smyrniolum olusatrum* (partially open).

In my former communications I quoted the flowering-seasons as given by Sir W. Hooker and Mr. Babington. I have refrained from so doing on the present occasion, lest I should trespass upon your space, as well as to avoid the appearance of pitting my humble observations against their high authority. All interested will “compare notes.”

I have been reminded that in my former articles on the present

subject I should have stated (in order to avoid undue expectations in less genial localities) that this district is, from its warm and sheltered and undulatory character, favourable to the early appearance of flowers. In the list now exhibited, there are several remarkable instances of early flowering; *e. g.*, *Anchusa sempervirens*, *Angelica sylvestris*, *Veronica Chamædrys*, &c., &c.

ISAIAH W. N. KEYS.

Plymouth, April 20, 1849.

Mr. Newbould the discoverer of Melilotus arvensis.

By G. S. GIBSON, Esq.

FEARING lest there may be some misapprehension respecting the discovery of *Melilotus arvensis*, from the recent mention of it in the 'Phytologist,' I beg to state, that it was first found at Thetford by W. W. Newbould, this summer; and it was not till I afterwards found both species abundantly in this neighbourhood, that I was satisfied of its being a distinct species. The credit of the discovery, therefore, entirely belongs to him, and not to me. It may be a point of little importance, but I shall feel best satisfied in having the real facts thus stated, as it is due to one of our most accurate yet diffident botanists.

G. S. GIBSON.

Saffron Walden, April 13, 1849.

On the Discovery of Udora or Anacharis in Berwickshire, in 1842, and again in 1849. By Dr. GEORGE JOHNSTON. Extracted from the 'Proceedings of the Berwickshire Naturalists' Club.'

ON the 3d of August, 1842, I found, in the lake at Dunse Castle, a plant, which interested me from its neat and peculiar habit. It grew, entirely submerged, amongst the ordinary pond Potamogetons, and a plant in flower could nowhere be seen. A specimen was sent to Mr. Babington, and afterwards, at his request, two or three other specimens were forwarded to him; and I learned, from Mr. Babington, that he had submitted them to the inspection of Mr. Borrer. It is unnecessary to say more than that my quest after the name and character of the plant was very unsatisfactory; and the interest in it

decayed and died away under the persuasion that the plant might have been introduced into the lake with some other aliens from the south. This persuasion was confirmed by Dr. Philip W. MacLagan, at a subsequent period, who, on seeing a specimen in my possession, at once told me it was an *Udora*, and, he believed, the same as the Canadian species. I presumed, therefore, the more that it was foreign to our district; and my interest lay dormant, until revived by the perusal of Mr. Babington's description of the *Anacharis alsinastrum*, in the 'Annals of Natural History' for February, 1848, for in this *Anacharis* I immediately recognised my Dunse Castle herbelet.

On writing to Mr. Babington, he replied, that he "had totally forgotten the plant" I had sent him, and the specimens were lost. I could not comply with his demand for other specimens, seeing that the habitat is sixteen miles distant from my residence; and to few provincial practitioners is given the leisure to ride thirty-two miles in order to cull a simple for the gratification of his own or of another's curiosity. My good fortune, however, was on the ascendant. A few weeks only had passed over, when I again found the *Anacharis* in a habitat in which it was, beyond all doubt and suspicion, most truly indigenous. On the 9th of August, whilst angling in the Whitadder, at Newmills, in the Liberties of Berwick, I was most agreeably surprised to find the plant growing with *Potamogeton crispus*, *pusillus*, and *perfoliatus*, in the bed of the river, at a depth of about fifteen inches. In the lake at Dunse Castle, the *Anacharis* had a long slender stem, but here, influenced by the stream, it grew in a roundish tuft or bunch, with stems not exceeding three or four inches in height. None of them rose to the surface, and on none of them were there any flowers.

On September 4, I again discovered the *Anacharis* in great abundance, in a small creek at a still and deep reach of the Whitadder, between Whitehall and Edington Mill. Here it had the habit of the plant in Dunse Castle Loch, with stems from two to three feet in length. None of them were in flower.

It would be presumptuous for me to say, whether the *Anacharis alsinastrum* is identical with the *Udora canadensis* or not. I have specimens of the latter from Dr. P. W. MacLagan, gathered in Detroit River, July, 1848, and they resemble exactly our Whitadder plant, as found at the Newmills station; but, like this, the Canadian specimens have also no flowers. I can see no difference of any moment in the shape of the leaves, for this differs in the British as in the American plant; and the structure and marginal serratures are exactly alike.

The spinulose serratures begin in both about the middle of the leaf, and are of a brown colour, and firm texture. The apex of the leaf in the Canadian *Udora* is usually more pointed or lanceolate than of the Whitadder *Alsinastrum*, but, in an aquatic plant, such a slight character is of no consequence. Pursh, in fact, of the American plant, says:—“Michaux describes the leaves to be oblong and obtuse, which is only the case in the early part of the season; at flowering time they constantly are long linear and acute.”—*Flor. Amer. Sept.* p. 33.

The American plant is “frequent from Canada to Virginia.” Dr. P. W. MacLagan writes me, that it is extremely common in Upper Canada, “but I never could make more than one species, although I looked at them well after I got Mr. Babington’s paper. Dr. Gray makes but one species in the Northern States.” Dr. Gray’s description of *Udora canadensis* is as follows:—“A perennial? herb, growing under water with elongated branching stems, thickly beset with pellucid and veinless, 1-nerved, sessile, whorled or opposite leaves,” which, in the specific character, he says are “oblong, ovate or lanceolate, finely serrulate ($\frac{1}{2}$ long).” All this agrees with our Berwickshire plant. Dr. Gray continues:—“The staminate flowers break off as in *Valisneria*, and float on the surface, where they expand and shed their pollen to fertilize the stigmas, which are raised to the surface by the excessively prolonged calyx tube which varies in length according to the depth of the water.”—*Bot. North. Un. States*, p. 462.

Remarks upon Mr. Watson’s Case between Mr. Andrews and Mr. Babington. By C. C. BABINGTON, Esq., M.A., F.L.S., &c.

As the discussion between “C.”, who has now transferred the matter to Mr. Watson, and myself, is probably of interest to a very small number of the readers of the ‘Phytologist,’ it is only from necessity that I again intrude upon its columns; but after the remarks of Mr. Watson, in the number for May, I can take no other course.

In the first place, I have to call attention to the following extract from a letter addressed to Mr. H. C. Watson, on April 8 last, as it totally contradicts the remark in his communication, that “a copy of Mr. Andrews’ paper was given by Professor Allman to Mr. Taylor, for publication in the *Annals*.” The extract is as follows: “Perhaps you will also tell ‘C.’ that I have consulted Mr. Taylor, and the

gentleman who is over that part of the office in Red Lion Court which is more especially appropriated to the periodicals there published, and that neither of them has any recollection of having ever received the paper upon Saxifrages from Mr. Andrews, although they do remember receiving a letter asking them to return such a paper, and also of having answered it, by denying their having the paper." I am authorised, also, to add, in their words, that "the paper would have been inserted if it had reached their hands." I must also direct attention to the fact that Mr. Watson had plenty of time to withdraw that incorrect charge against the *Annals*, between the 9th or 10th of April (when he doubtless received my letter) and the time of publication of the May number of the '*Phytologist*.' Even supposing, as is most improbable, that the first sheet of that number was printed off before he had the means of making the correction, he was bound to do so on the second sheet, or on the cover. A letter giving similar information was addressed to the editor of the '*Phytologist*,' for the information of "C.", on the 7th of April; and as Mr. Lees' paper, which is printed upon the same sheet as Mr. Watson's, is dated upon that day, it is indisputable that the refutation was in the editor's hands long before the sheet containing the charge was printed off.

I am stated to have been present when Mr. Andrews' paper was read, which I fully believe was not the case. No notice, as far as I can find out, was given in the *Journal of the Sectional Proceedings*, of the intention to read such a paper; and as I was fully occupied with the important duties of the *Treasurership* during the whole of that meeting, I was unable to attend the section with any regularity. I was in the chair during the session of one day, and present during part of another day, but, I believe, absent on the other days. Even had I been present, I could only have congratulated Mr. Andrews upon his discovery, but objected to his conclusions concerning species. I now learn from the '*Athenæum*,' that his was the last paper read to the section.

I avoid all notice of the personal, or, as Mr. Watson calls them, ethical, matters contained in the paper, as a scientific journal is not the place for giving or retorting insinuations of a want of the "sense of truth and right."

It is only necessary to add, that I do "make it my duty and desire to know something about" papers which "refute, by facts, any considerable error that has been sent into public circulation by myself;" and that if Mr. Watson did not see by my former remarks, that I could not know anything [of] a paper of the locality of which I and

my friends were ignorant, he certainly must have [seen] that I had no means of becoming acquainted with it when he received the letter which contains the above-quoted extract.

C. C. BABINGTON.

St. John's College, Cambridge,
May 4, 1849.

P.S.—It may be as well to state, that I had no reason to suspect that my generalisation, and “apparently curious discovery,” was “too hasty,” as I had employed the intervals between July 7 and July 24, in the year 1841, and between August 29 and September 15, in the year 1843, in the county of Kerry, on both occasions making the study of the Robertsonian Saxifrages my primary object. Before generalising, I had examined thousands of living specimens, and not “trusted to the characters of an insufficient series.” I still believe that the plants with dentate leaves are by far the more common in Ireland, and those with them crenate in the Pyrenees.

A few Words in explanation of my “odd mistake,” as mentioned by “C.” By JAMES BACKHOUSE, JUN., Esq.

WHILST entirely accepting the charge of misunderstanding “the subject at issue,” and not wishing in any way to prove discretion where there is indiscretion, I wish to inform “C.” that his remarks in the ‘Phytologist,’ at page 451, were liable, and indeed almost *certain*, to be misunderstood.

Had I not been accused of “inattention, sheer carelessness, irrelevance,” &c., in rather a hasty way, I should not have thought “C.”’s last paper worth answering, or now ventured to *trespass* upon the pages of the ‘Phytologist.’

In “C.”’s quotation from Andrews, *two* main points are touched upon; viz., the *identity* of the *forms* of *S. Geum* and *umbrosa* in Ireland and the Pyrenees; and “*further*,” the transition of these forms into each other being so complete, as to *set aside any pretension to specific difference* between *hirsuta*, *elegans*, and *serratifolia*. “*This view of the subject*” (says Andrews) “has since been confirmed by Mr. Spruce but Mr. Babington has not yet found time to *correct any* of the statements where they have been so positively asserted by him.”

“C.” confirms the statements of Andrews respecting the variable-

ness of the forms and serratures of the leaves of the Irish Saxifrages, and their general identity, in these respects, with Pyrenean specimens.

Afterwards comes a dissertation upon the accuracy, &c. of Babington; followed by "C."’s opinion, that there is a scientific, if not a moral, obligation for the former to correct his "error."

Now surely there is nothing "odd" in a reader of the 'Phytologist' supposing that this "error" alludes to the *two* points of Andrews' sentence, as "C." does not state that he means it *only* to apply to that part which he commented upon.

The quotation from Andrews certainly refers to *specific distinctness* as *part* of that (error) which Babington had not found time to correct. Whether "C." has mutilated the original, or selected passages which convey an incomplete view of Andrews' sentiments, is not for me to say; but the *words given* in the quotation do connect (unintentionally, no doubt) the error with *specific distinctness*; and "C."’s "error" evidently alludes to that inferred by Andrews.

Is it strange, then, and inexplicable, that I should suspect "C." of coinciding with Andrews on the point of *specific distinctness*?

It must be remembered that Babington, in his 'Manual,' gives *Saxifraga umbrosa*, *elegans*, *hirsuta*, and *Geum* as distinct species, and that Andrews (according to the quotation) differs with him in opinion on this subject.

I make no doubt whatever of having misunderstood what "C." informs us now that he intended to convey, but which he certainly *did not convey clearly*.

From the last number of the 'Phytologist' it appears that "the strictly scientific point of the case may now be considered as settled;" if so, may I ask "C." and others to pass over the "objectionable" parts of my last paper (the title and first paragraph), and consider the subject of hybridization carefully, in connexion with the Irish Saxifrages?—the question of their specific distinctness (or the contrary) assuredly is *not* settled satisfactorily.

In conclusion, I would recommend, that if "C." (or any writer) gives another paper on this or any other subject, he bring out his *name* openly, as my previous "strictures," "false witness," &c. would probably have been spared had he done so before. In a journal like the 'Phytologist' no one ought to suppress his name, to make remarks in secret which he would *shrink* from making openly. A mere alphabet letter like "C." or W. ought not to expect that politeness which is *due* to an honest name.

J. BACKHOUSE, JUNR.

York, May 5, 1849.

[As this controversy has ceased to be instructive, and adds nothing to our botanical knowledge, I hope it will now cease altogether. I am very reluctant to refuse admission to any communication, or to afford a contributor the opportunity of saying he has not been fully and fairly heard; but I would suggest to the parties concerned in the present discussion whether anything can be gained by prolonging it. —*Edward Newman*].

Notice of 'The Ancient Straits of Malvern. An Essay on the Former Marine Conditions which separated England and Wales, and an Account of the Probable Physical Changes by which the Principality has become united to Great Britain.' By JAMES BUCKMAN, F.G.S., Professor of Geology and Botany in the Royal Agricultural College, Fellow of the Botanical Society of Edinburgh, Honorary Local Secretary of the Botanical Society of London, Honorary Member of the Cheltenham Literary and Philosophical Society, of the Gloucester Philosophical and Literary Society, etc. London: Longman, Brown, Green, and Longmans.

THE title is so explanatory that any attempt on our part to set forth the author's object would be quite superfluous. With great modesty he informs us that "The discovery of the Marine Plants is, perhaps, the only new feature of the present paper." This we fully admit; indeed, we were almost inclined to doubt the novelty of *this* feature, seeing that the several localities of the plants have been previously recorded, although their presence has been generally attributed to the escape of brine from the salt-works into the canal at Droitwich: this explanation Mr. Buckman is not inclined to receive. He admits that this escape of salt-water induces the conditions necessary to *maintain*, but not to *originate*, a littoral flora. He observes:—

"The distance of this canal from the usual localities of these plants, and the fact that the boats from the canal do not in general venture into the broad estuary, and a consideration of the accidents the few seeds would be subject to that might by possibility get into a boat, do not appear sufficient to account for the enormous quantity of these plants, which at present occur in *patches often a considerable distance apart*, on the banks of the canal in question."

We believe botanists will generally admit that plants will make

their appearance in localities where the conditions necessary to their well-being are fulfilled; thus we find *Sphagnum*, *Drosera*, *Narthecium*, and a hundred other plants in spots possessing the conditions they require, although no other localities occur for miles around: nay, it is almost impossible to cut a canal without having it half choked with water-plants unknown in the neighbourhood. *Typha*, *Lythrum*, *Butomus*, and *Alisma* luxuriate in the cavities made to supply the embankments of the Eastern Counties, South Eastern, and other Railways; they come immediately, no one knows from whence. Under these circumstances it does not seem extraordinary that salt-loving plants should appear at Droitwich, where earth, air, and water appear to be loaded with salt.

We extract Mr. Buckman's interesting

"List of Marine Plants now growing in the Valley of the Severn."

"Scirpus maritimus. This salt-marsh plant occurs in considerable quantity in the ditches of Longdon Marsh, near Upton-on-Severn, Worcestershire, which doubtless at an earlier period constituted a great back-water of the Severn estuary, and at the present time its level is lower than the bed of the adjacent river, so that it has been impracticable to drain it.

"Gastridium lendigerum. This grass is seldom found except close to the sea, but Mr. Lees found it in Sarnhill Wood, a lias eminence on the western side of the Severn, near Tewkesbury.

"Poa distans. A grass commonly found on the sandy sea shore, but flourishing abundantly on the banks of the Droitwich Canal.

"Triticum junceum. Also growing by the side of the Droitwich Canal.

"Iris fœtidissima. Most common and luxuriant on the sea coast, but forming actual thickets in Sarnhill Wood. Growing also on the Berrow Hill, a lias eminence near Bromsberrow, as well as in the Vale near Cheltenham.

"Lepidium rudemale. Stated by Dr. Stokes as growing above Worcester many years ago, and found on the banks of the Droitwich Canal in 1847.

"Erodium maritimum. On various rocks and banks about Bewdley and Kidderminster, as well as around Hartlebury Common, near Stourport.*

* This is a large common, made up of marine sand, which, at the present moment, is open and exposed, and the sand drifts about like sand on our present sea shores, presenting all the effects of sand hummocks or dunes.

“*Rosa spinosissima*. Near Worcester and Kidderminster, on deep sands. Most abundant on the coast.

“*Apium graveolens*. Abundant in ditches throughout the vale of Severn, from Worcester to Cheltenham and Gloucester. Also fringing the Droitwich Canal most luxuriantly.

“*Bupleurum tenuissimum*. On Barnard’s Green, near Great Malvern, Welland Common, near Upton, and on the Nunnery Farm, near Worcester, on the Spetchley road. Mr. Edwin Lees.

“*Enanthe pimpinelloides*. This umbelliferous plant well illustrates the case in hand. At present it flourishes abundantly on the coast of Devon and near Weymouth, but appears to be confined to the south-western counties of England. Its abundance in meadows at Forthampton, near Tewkesbury, and at Powick, three miles west of Worcester, is truly astonishing. In fact this plant may be traced, as my friend Mr. Lees informs me, from Wainlode Cliffe, between Tewkesbury and Gloucester, all up the Severn valley to Worcester. At Powick the plant appears to grow on the margin of the great back-water, that at some former period extended in this direction. It also grows at Maddresfield, within three miles of the Malvern Hills.

“*Smyrnum Olusatrum*. This common sea-side plant, at the present time, grows plentifully at the base of the red marl cliff at the Mythe, near Tewkesbury. It is also mentioned by Dr. Nash, in his ‘History of Worcestershire,’ as occurring in great profusion at Hill Croome, in that county.

“*Glaux maritima*. This pretty little littoral plant flourishes in the greatest profusion on the side of the Droitwich Canal, between Bever-eye and Salwarp, above Worcester.

“*Samolus Valerandi*. Mostly in salt-water marshes. On Defford Common, an extensive flat, five miles east of Upton-on-Severn, which was once probably a saline marsh.

“*Plantago maritima*. A decided coast-plant. Recorded in the ‘Phytologist’ as having been found on Hartlebury Common, by Mr. Reece, of the Worcester Museum.

“*Atriplex rosea*. Gathered on the banks of the Droitwich Canal, by Mr. T. Westcombe, of Worcester.

“*Rumex maritimus*. Noticed by my friend Mr. E. Lees, most abundantly in the Longdon Marshes, and also gathered by him at the chalybeate pool, Great Malvern, and on the side of the Severn below Worcester bridge.

“*Arenaria marina*. In some quantity in various spots close to the edge of the saline Droitwich Canal. There appears to be a curi-

ous difficulty with respect to the *exact species* of this plant, as Mr. Babington of Cambridge, to whom Mr. Lees sent specimens, thought it exactly *intermediate* between *A. rubra* and *A. marina*.

“The plants in this list though not all perfectly marine, are yet such as generally *elect to grow by the sea side*, hence their prevalence in the district under review affords good evidence that marine conditions once prevailed along the greater part of the valley of the Severn, and that the marine waters were far wider than the reach of even the floods of our day.”

Notice of 'The Sea-Side Book. By W. H. HARVEY, M.D. London: Van Voorst. 1849.’

A VERY pretty book with a very good title, and from beginning to end replete with solid and valuable information. The illustrations are numerous and admirable, and the getting up of the book is everything that could be desired.

There is, however, a little drawback to this encomium. Dr. Harvey is known to be a profoundly philosophical writer, more especially profound and philosophical on the productions of the sea; and having justly acquired a reputation for great knowledge—we had almost written wisdom—he finds it difficult, or thinks it undesirable, to descend to that familiar style which attracts the student, and which is really required to maintain any lasting hold on the attention of the holiday Rambler on the beach of a summer sea. We are aware how very rarely are united in the same individual, knowledge and the power of communicating it attractively; hence the unpopularity of correct, the high popularity of incorrect books. It seems to matter little to the reader what blunders may occur in transposition of names, or mis-statement of facts, provided such blunders and mis-statements are served up in agreeable and perspicuous language. How greatly is it to be deplored that those who possess the knowledge will not stoop to the *mental calibre* of those who read. We use this term in no offensive sense, but we draw a marked and permanent distinction between the mode of addressing scientific truths to a Robert Brown, or a Hewett Watson, and that mode required by our wives and children; and a sea-side book, with its pretty illustrations and attractive cover, is apparently designed for our wives and children, rather than for our Browns and Watsons. The first edition is sure to sell—Dr.

Harvey's name, Mr. Van Voorst's getting up, and its own intrinsic scientific merits will ensure that : and we earnestly intreat the amiable and distinguished author to write the second in a different style, and adapt it for those to whom it seems more especially addressed ; to leave out the philosophical and almost Newtonian introductory chapter, and fancying himself strolling on a sandy beach with friends of the gentler sex, and active, light-minded youngsters, write as he would talk to them of the infinite wonders of the deep. It would be in accordance with the usual plans of critics to prove our allegation by quoting the passages which more especially call forth our remarks ; we might aptly cite his views of "The enunciation of inductive philosophy," of "scientific classification," of the "alternations of generation," or any of the more abstruse portions of the little volume before us ; but we prefer selecting a passage in his lightest style, and on a subject—sea-weeds—which he has made peculiarly his own.

"Sea-weeds are usually classed by botanists in three great groups, each of which contains several families, which are again divided into genera ; and these, in their turn, are composed of one or many species. The number of species as yet detected on the British coasts is about 370, and they are grouped into 105 genera. I cannot, in this place, enter into the niceties of classification to which botanists resort in working out the history of these plants, but must confine myself to the general features of the great groups, and their distribution. Taken in the order in which they present themselves to us on the shore, and limiting each by its most obvious character, that of colour, we may observe :—that the group of green sea-weeds (*Chlorospermeæ*) abound near high-water mark, and in shallow tide-pools within the tidal limit ;—that the olive-coloured (*Melanospermeæ*) cover all exposed rocks, feebly commencing at the margin of high-water, and increasing in luxuriance with increasing depth, through the whole belt of exposed rock ;—but that the majority of them cease to grow soon after they reach a depth which is never laid bare to the influence of the atmosphere :—and that the red sea-weeds (*Rhodospereæ*) gradually increase in numbers, and in purity of colour, as they recede from high-water mark, or grow in places where they enjoy a perfect shade, or nearly total absence of light, and are never exposed to the air, or subjected to a violent change of temperature.

"The green sea-weeds are the simplest in structure, and the least varied in species, on different coasts, and consequently the least interesting to the collector of specimens. With the exception of the beautiful genus *Cladophora*, which contains about twenty species, our

British Chlorosperms are chiefly composed of *Ulvæ* and *Enteromorphæ*, whose forms vary with so little order, that it becomes difficult, and, in some instances, hopeless, to attempt to classify the varieties. The *Enteromorphæ* are the first to make their appearance about high-water mark, covering loose boulders or smooth rocks with a slippery vesture of bright green, or filling the shallow tide-pools with grassy fronds. These plants consist of tubular membranes, simple or branched, appearing to the naked eye like fine green silk, and showing to the microscope a surface composed of minute cells, full of granules. The commonest species near high-water mark is *E. compressa*, which commences of a very stunted size, and with thread-like branches, if exposed to the air, and gradually acquires length and breadth as it grows in deeper water. When fully developed, it has a frond divided nearly to the root into many long, subsimple branches, which bear a second or third series, all of them much attenuated at their insertion, and more or less distended at the extremity. The diameter of the tube varies extremely, and the broader and simpler individuals are only to be known from *E. intestinalis*, by their being branched; the tube in the latter species being absolutely simple. To the *Enteromorphæ* succeed *Ulvæ*, distinguished from *Enteromorphæ* merely by being flat, instead of tubular. The beautiful lettuce-like plaited leaves found in tide-pools, belong to plants of this genus, the commonest species of which is *U. latissima*. It has a very broad, more or less ovate, plaited leaf, of a brilliant green, and remarkably glossy, when in perfection reflecting glaucous tints, if seen through clear seawater, and is certainly a very ornamental species. It is sometimes brought to table as a laver, or marine sauce, but it is much inferior in flavour to the purple laver (*Porphyra laciniata*), a plant of the same family, equally beautiful, equally common, and more generally collected for food. The purple laver grows on exposed rocks near low-water mark, and though called purple, assumes at different seasons of the year different shades of colour, according to its age. In form it resembles the green laver (*Ulva latissima*), but is of a still more delicate substance, consisting of a perfectly transparent and very thin membrane, elegantly dotted with closely set grains, to which it owes its colour. When these grains are in perfection, they are of a dark violet-purple; and this is the case in winter and early spring, when the plant is collected for the table. Later in the year the fronds are of stunted size, and more or less olivaceous colour, and much less suitable for gathering. The plant appears to be of very rapid growth and decay, a few weeks sufficing for its full development. Like many fugi-

tive plants, however, it is not confined to one season, but continues to develop throughout the year; but with this difference, that the plants developed in summer are very much smaller, more tenacious, and of a dull colour. These last are regarded by some authors as a different species, and called *P. umbilicata*.

“There is a circumstance connected with the history of our common *Ulvæ*, *Enteromorphæ*, and *Porphyræ*, which deserves notice. Most of the species common to the European shores are found in all parts of the world to which a marine vegetation extends. In the cold waters of the Arctic sea, *Ulva latissima*, *Enteromorpha compressa*, and *Porphyra laciniata* vegetate in abundance; and these same plants skirt the shores of tropical seas, and extend into the southern ocean as far as Cape Horn. Vegetation, at least with its most obvious features, ceases in the south at a much lower parallel than in the Arctic regions, and the shores of the Antarctic lands appear to be perfectly barren, producing not even an *Ulva*. But the fact of the great adaptability of plants of this family to different climates, is beautifully illustrated by the last land plant collected by the acute naturalist attached to our Antarctic expedition. The last plant that struggles with perpetual winter was gathered at Cockburn Island, 64° S. (a latitude no greater than that of Archangel, where the vine is said to ripen in the open air), and this proved to be an *Ulva* (*U. crispa**), identical with a small species which may often be seen in this country on old thatch, or on damp walls and rocks, forming extensive patches of small green leaves. It is not common to find marine plants with so wide a distribution; but a nearly equal extent of sea is characterized by another of the British *Chlorosperms*, of a much greater size and more complex structure. On most of the rocky coasts of Britain may be gathered, in tide-pools, or rocks near low-water mark, an *Alga* of a bright green colour and spongy texture, cylindrical, and much branched, the branches dividing pretty regularly by repeated forkings, and the whole invested, when seen under water, with a downy coat of colourless filaments. The name of this plant is *Codium tomentosum*. Under the microscope it is found to be wholly composed of small threads, of a tenacious, membranous consistence, filled with a dense granular fluid, closely and intricately matted together; the threads in the centre of the branches having a longitudinal direction, while those of the circumference are horizontal, presenting their

* See ‘*Flora Antarctica*,’ vol. ii. p. 498. In the northern hemisphere, *Ulva crispa* extends to Spitzbergen, in lat. 80°.

closely set tips to the surface of the frond. This plant abounds on the shores of the Atlantic, from the north of Europe to the Cape of Good Hope: it appears to be equally common in the Pacific, extending along the whole western coast of the American Continent: it is found in the Indian sea, and on the shores of Australia and New Zealand: nor is there any certain character by which the specimens of one country may be known from those of another.

“Allied to the *Codium* in structure, and not uncommon in rock-pools, is a slender and extremely elegant little plant, *Bryopsis plumosa*, which consists of a multitude of soft green feathers gracefully connected together. Its substance is exceedingly flaccid, and the branches fall together when removed from the water, but immediately expand on re-immersion. Few of our marine plants are more beautiful; and the pleasure of admiring its graceful characters may be indefinitely prolonged, as it is one of the plants which may be most easily grown in bottles of sea-water. Whilst it continues to vegetate, it will keep the water sweet and pure, and no care is needed except to close the mouth of the bottle, so as to prevent evaporation. The *Bryopsis*, in all its characters, has the structure of a vegetable; nor does it much resemble the zoophytes in aspect. And yet it is one of those plants which closely link the lower members of the vegetable kingdom with those of the animal. Through *Bryopsis*, the passage is very clear into *Acetabularia*, an elegant Mediterranean plant, which closely resembles a zoophyte, and which was, indeed, till lately, classed in that division of animals. Instances of this kind of seeming connexion between the two great kingdoms of the organized world, meet us frequently among the lower groups of either, and often, as in this case, where connexion is least looked for. The genus *Cladophora*, to which I have already alluded, consists of the branching species of the green division of the old genus *Conferva*. These plants are formed of strings of cells, one cell growing from the apex of another, so as to form a jointed thread. The species are distinguished by differences in the branching, in the proportionate length of the cells, and in their diameter; and nearly all of them are beautiful objects. They mostly form scattered tufts, in rock-pools, but some occur gregariously in extensive patches, covering rocks or fuci with a bright green fringe.”

K.

DUNDEE NATURALISTS' ASSOCIATION.

May 1, 1849.—The President in the chair.

A paper was read by Mr. J. Wyllie, being a visit to Glenearse, Perthshire.

A note on the British species and varieties of *Symphytum* was read from Mr. Geo. Lawson, who called attention to these plants, suspecting that their nomenclature is somewhat confused, and that they are not very clearly known, with the view of ascertaining more accurately their distribution and relative frequency in Forfarshire.

Mr. Ogilvie exhibited some very fine specimens of *Bryum carneum*, from the Den of Mains, being a new locality for the plant.

A donation to the library was announced from Mr. Lawson; also 'The Nomenclature of British Plants' from Mr. Ibbotson.—*W. M. O.*

Inquiry respecting the Class and Order to which certain Genera of Plants belong. By GEORGE M. BARTLETT, Esq.

You would confer a great favour on the readers of the 'Phytologist' at our Devon and Cornwall Natural History Society, if you would be kind enough, in your next number, to inform us to what class, order, &c. the genera of plants mentioned in the 'Geography of Plants,' by Meyen, &c., belong—viz., *Phippsia*, *Parrya*, *Eutrema*, *Platypetalum*, *Colpodium*, *Duponia*, and *Pleuropogon*; the above work not even mentioning whether they are Monocotyledonous or Dicotyledonous,—a strange omission, considering the importance and peculiar interest attached to their history, as a part of the Arctic Flora, as new genera, &c.

G. M. BARTLETT.

Plymouth, May 10, 1849.

[*Colpodium* of Trinius, *Dupontia* (not *Duponia*) of Robert Brown, *Phippsia* of Robert Brown, and *Pleuropogon* of Robert Brown, belong to the natural order Gramineæ and class Endogens. *Eutrema*, *Parrya*, and *Platypetalum*, all of Robert Brown, belong to the natural order Brassicaceæ, and to the hypogynous division of the class Exogens.—*Edward Newman.*]

Occurrence of Stereocaulon tomentosum in fruit.

By W. M. OGILVIE, Esq.

WHILE botanizing with my friend Mr. Gardiner on the South Ferry Links, Fifeshire, on Saturday last (5th), among other rarities collected was *Stereocaulon tomentosum*, which we found in various places, in considerable abundance. After reaching home and beginning to lay out my day's collection, I found I had got a greater rarity than I anticipated—some of the *Stereocaulon* being in fruit. As this is the first time, so far as I am aware, in which the fruit has been found in Britain, I think it worthy of record in the pages of the 'Phytologist.'

W. M. OGILVIE.

20, Castle Street, Dundee,
May 11, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 536).

Ligustrum vulgare. In woods, thickets, hedges, bushy places, and on banks, over a great part of the Isle of Wight, most abundantly. Plentiful everywhere about Ryde, and throughout the tertiary or fresh-water formation, constituting a considerable proportion of the brush or undergrowth of our woods and hedgerows. Profusely in most of the chalk districts, rarer on the greensand, and a great ornament where it abounds, loading the air on a hot day in June or July with the sweet but somewhat cloying fragrance of its beautiful milk-white flower-spikes, and decking copse and tufted hedgerow no less in autumn with its pyramidal clusters of polished purple-black berries. Less universal, I think, in mainland Hants than in the Isle of Wight, yet very abundant in many parts of the county, particularly on the chalk. Everywhere about Andover and Appleshaw, in plenty. Abundant in Bordean Hanger. Maindell chalk-pit. Fareham; Mr. W. L. Notcutt !!! and many other places. The leaves with us are partially persistent, and with various species of *Rubus* give a welcome tint of green to our hedgerows in winter. The long straight shoots of the privet, from their toughness and pliability, are used in tying up small

bundles or faggots of fire wood by the country people; and parties of children may often be met, coming from the copses, with their arms full of these primitive ligatures, unconscious of the support they are giving to the sometimes mere fanciful conjectures of the classical etymologist.*

Fraxinus excelsior. In woods, copses, hedgerows, and hilly pastures; everywhere common. The "*Fraxinus in sylvis pulcherrima*" is, next to the elm, the tree which attains to the greatest magnitude, as timber, of any indigenous to this island, and is second to none but the oak in value.

Vinca minor. In woods, copses, groves, and on hedge-banks in lanes, not uncommon and truly wild in various parts of the county; very rare (in that state) in the Isle of Wight, less unfrequent in a naturalized condition. Truly indigenous and profusely abundant in a hilly copse called Bottomground, about half a mile west of Idlecombe farm, betwixt Carisbrook and Shorwell (Phytol. i. 328). About St. John's, the Priory, and at Nunwell, naturalized. In a little wood near the house lately occupied by Captain Deare, West Cowes; Miss G. E. Kilderbee. I found it plentifully some years since in a lane near Twyford, a few miles from Winton, and in a copse betwixt Bramdean and West Meon, 1838. Millam Copse, East Meon, in great plenty; Miss G. E. Kilderbee. Langrish; *Ead.*!!! Sinkhorn's Copse, Otterbourne, in great profusion; Miss A. Yonge. On a high bank betwixt Petersfield and Nurstead, and in a chalky pasture at Privet, near Petersfield, 1848. Hale Down field. Lane betwixt Warnford and West Meon; Miss E. Sibley. Doubtless in innumerable other places, being a plant of decidedly frequent occurrence in the woods of the south of England, particularly on calcareous soils, often found covering the greater part of a large copse with a carpet of the deepest verdure, its own lovely flowers interwoven with the primrose and wild hyacinth in all the freshness of vernal bloom and beauty. A native throughout central Europe, from England eastward to Poland and Russia.

‡ *Vinca major.* Half wild on hedge-banks, in garden fences, under walls, palings, and about shrubberies, frequent; also in woods, thickets, and shady lanes occasionally, always with some, though often but obscure, indications of having become naturalized in such stations. Margin of the copse wood on the shore a little west of Ryde, but sparingly, and only by a made road through the wood, and too near

* *Ligustrum*, from *ligo*, to tie or bind.

the town. Amongst brushwood on a high bank of slipped clay at Watch House Point, St. Helens, in great plenty, and fructifying freely; but the place appears to have been a look-out station in former times, though now quite wild and abandoned; and I once found a beam or rafter, in a state of decay, close to where the plant grows, showing it to have been the site of an habitation, about which the *Vinca* was probably planted. Plentiful along a hedge in the by-road from Net-leston Green to Sea View, doubtless escaped from the shrubbery at Fairy Hill. In similar places about Norton, Yarmouth, Godshill, &c., as well as on the mainland of Hants; not uncommonly. Scarcely a native north of latitude 45°, and therefore excluded from nine-tenths of the floras of central Europe; whilst in the remainder, as those of Paris and Switzerland, its claim to insertion is not better than with ourselves.

Chlora perfoliata. In woods and pastures, on banks and cliffs by the sea; very common in the Isle of Wight, growing both on the wettest clay and the driest chalk. Frequent on the banks of slipped clay along the shore on both sides of Ryde, and plentiful on the steep face of the chalk cliffs at the upper end of Sandown Bay. About Luccombe Chine, Shanklin, Ventnor, and indeed along the entire line of coast round the island, and equally frequent in the interior, as about Carisbrook, Newport, and most other places. Hardly less frequent, I believe, on mainland Hants, but I have not paid attention myself to its distribution in that part of the county. On Bordean Hill. In Maindell chalk-pit; Mr. W. L. Notcutt (in plenty, October, 1848). Plantation by Wheely Cottage, near Warnford; Rev. E. M. Sladen. Selborne; Rev. G. White: probably common over the entire county.

The beautiful golden yellow flowers expand only in sunshine or a strong light, closing early in the afternoon (about two) for the rest of the day, and not opening again till the following morning about eight or nine. If a handful of the plant be gathered and placed in water, the flowers will continue to open and close at the accustomed hour for several successive days; when once shut, exposure to the sun's rays proves insufficient to stimulate them to expand a second time, until the usual period of repose has elapsed. The ovary of this plant is full of a greenish yellow and very glutinous, but scarcely bitter, juice, only found in that particular part; the rest of the herb is very bitter, but juiceless.

Erythraea pulchella. In dry sandy or gravelly fields, pastures, and waste places, not unfrequent, though less common than the fol-

lowing, of which I am much disposed to hold it a variety. About Ryde and Cowes, as on Ryde Dover; Mr. Wm. Wilson Saunders !!! Above the shore to the west of Yarmouth. At Ryde; Mr. J. Woods in Bot. Guide. Freshwater Village; Rev. G. E. Smith.

Erythræa Centaurium. In dry fields, pastures, woods, and bushy, heathy places; very common. About Ryde, in Quarr Copse, &c. Woods at Yarmouth, Cowes, Freshwater, &c., plentiful. Common throughout the county, in Hayling Island, &c. Occasionally with white flowers near Thorley and elsewhere, but not frequent.

———— *linarifolia* (E. littoralis, Sm.). On sandy shores and banks by the sea, but rarely? Alum Bay, betwixt Groves' Hotel and the sea; Dr. Martin! Sea banks near Compton Bay; Mr. W. D. Snooke. Headon Hill, within twenty yards of Mr. Ward's cottage; Miss G. E. Kilderbee! but I am dubious if belonging to this species, which I confess not to be well acquainted with, and to have hitherto neglected examining. All our four kinds of *Erythræa*, indeed, resemble each other too closely in essential characters to be perfectly satisfactory species; and I think much of the differences in habit, branching, form of leaves, and relative length of calyx and corolla, may be owing to soil and situation. N.B. *E. latifolia* has been stated to me by the Rev. E. M. Sladen to grow on Southsea Common, Portsmouth.

Cicendia filiformis. In damp, sandy, heathy places, by road-sides, and in cart ruts in the south-western parts of the county, towards the coast; rare. Near Christchurch; Mr. J. Hussey, 1847! In cart ruts on sandy heaths near Avon Cottage, by Ringwood; Mr. J. Curtis and the Hon. C. A. Harris (Icon in Brit. Entom. vol. xiv. t. 628, from a Hamps. spec.). I have constantly been expecting to fall in with this plant in the Isle of Wight, where on geographical grounds its existence might almost be predicted with confidence; for though it has hitherto eluded observation, I am persuaded it will eventually manifest itself, one of these *fine* days, to some lucky explorer of our island; sandy heaths, probably towards its north-western extremity, being the nearest part to that portion of the opposite coast where it is known to grow. A plant so small and slender, and whose flowers open only in bright sunshine, may easily escape detection for a long time, yet turn up abundantly at last. *Cicendia filiformis* is very common about Poole, in Dorsetshire, and to the eastward of us in St. Leonard's Forest, Sussex; the chances are therefore very greatly in favour of its occurrence in an intermediate station, to the westward of the last, and enjoying an insular position, the species being amongst those most strongly

characteristic of the maritime, southern, and occidental flora of Britain.

Gentiana Amarella. On dry hilly and chalky pastures and banks, in various parts of the Isle of Wight and county, but not very common. Plentiful in certain years all around Carisbrook Castle, on the hill and in the moat; (profusely on the north-east side of the castle, on the turf above the carriage-road, September 14, 1848). In White Pit, by Newport, abundantly, and at Binstead, 1839. About Bonchurch, Swainston, Rowledge, Westover, Yarmouth, Freshwater, and on the high downs in most parts of the island, here and there. Equally common, I believe, on the mainland of Hants. Plentiful along the crest or ridge of Portsdown Hill, by the road-side east of the Nelson monument, October, 1848. Maindell chalk-pit; Mr. W. L. Notcutt!!! A variety of this species having the calyx segments very unequal, two of them considerably larger and longer than the three others, but neither ovate nor concealing the latter as in *G. campestris*, I found, May 31, 1841, on the dry chalk down above Sandown Bay. Some of the lower flowers had the calyx 4-cleft,—in these the difference of size in each alternate segment was very conspicuous, the smaller, shorter and inner being linear, the outer and larger ovate-lanceolate.

?*Gentiana campestris.* On dry, elevated, gravelly or chalky pastures, and limestone hills. Never seen or met with by me in or from the subjoined stations, although a plant extremely likely to grow in this county and island. I fear the last species has been mistaken for it (possibly the variety just described), on some at least of the alleged localities; yet from the great probability of its occurrence, and the respectable authority of the reports, I am unwilling to exclude the field Gentian from our indigenous list merely because no examples have been seen by myself. I shall be glad to have these doubts removed by receiving specimens from some obliging correspondent. Heathy pasture between Colwell and Weston (Freshwater parish), plentiful; Mr. W. D. Snooke: I have searched for it there in vain. My valued and scientific friend Dr. Martin, in his recently-published excellent work on the natural history, &c. of the Undercliff, gives "Downs above Steephill" as producing this species, which as yet I can neither corroborate nor disprove. One or more stations have been given me for the mainland, but as being on dubious authority, I forbear to quote them here.

————— *Pneumonanthe.* On moist turfy or boggy heaths, but rare; not yet found in the Isle of Wight, and apparently confined to the south-west or New Forest district of the county, near the borders

of Dorsetshire. On both sides of the path leading to the decoy pond in the New Forest, sparingly, August 3, 1841; Mr. T. B. Flower! Near Christchurch, 1847; Mr. James Hussey! Parley Heath; Mr. Curtis in litt., and in Brit. Entom. vi. tab. 281 (drawn from a Hants specimen). This very beautiful plant will most likely be found in our eastern forest tracts of Bere, Holt, Aldershot, &c.

Menyanthes trifoliata. In boggy, marshy places, wet or peaty meadows, drains, &c., in various parts of the Isle of Wight, but not very common. Sparingly in Sandown Level. At Easton Marsh, Freshwater Gate, and elsewhere in that parish; on Colwell Heath, and near Thorley. Near Alverstton Mill, and in Alverstton Lynch. On Kingston Moors; between West Court and Sandy Way, by Shorwell. Boggy meadow in the valley of the Medina, near its source, &c. Common in mainland Hants. Very fine and abundant in Winal water meadows, by Winton. Meadows at Wonston, Bullington, Barton Stacey, &c.; Rev. D. Cockelton. Itchen Stoke; Miss L. Legge. Andover; Mr. Wm. Whale. Chilbolton, Boarhunt, Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. The plant may be looked for with tolerable certainty, in full flower, before the middle of May in this part of England (see Phytol. iii. 203). N.B. *Villarsia nymphaeoides* is naturalized in a small pond in a field betwixt Ryde and Brading, where it was introduced by my friend Dr. Salter, and in which *Hydrocharis morsus-ranæ* and *Stratiotes aloides* are perfectly established, though not indigenous to the island. The *Villarsia* may be reasonably expected in some of the larger rivers and still streams of mainland Hants. I have gathered it in Sussex, in ditches on Lewes Level; but it is difficult to say where this elegant aquatic is truly native or where introduced, so extreme is the facility with which it becomes naturalized from the smallest fragment thrown into the water, yet is the species one of considerable rarity, and of very local distribution in its truly wild state.

Convolvulus arvensis. In corn-fields, gardens, waste ground, at the foot of walls, on hedge-banks, and by way-sides; most universal and abundant over the entire county and island. Varies with us in the colour of the flowers, which are often nearly two inches across, from the deepest and most vivid rose-red or peach-blossom to nearly white, mostly with an indented or zig-zag ring of bright crimson a little above the very short yellowish tube. Very profuse and richly coloured about the sandy cliffs of Sandown Bay, where, as in other places,*

* Near Hastings, and at Gravesend.

I have gathered ripe capsules in abundance, not, I believe, very generally perfected. It is certainly a pretty sight to behold the corn-fields and road-sides adorned with ten thousand of its beautiful and fragrant bells, wide opened and upturned to the midday sun of June and July, or festooning some green hedgerow to its topmost branch; but neither its beauty nor delicate almond perfume can find it favour in the eyes of the farmer, who too well knows it as a grievous adversary in his moist corn-fields, twining around the stalks of the wheat, and if not strangling the crop, doubling the labour and difficulty of getting it in. The flowers wholly or partially close at night, or in damp, cloudy, or rainy weather, as well as in the afternoon. I have gathered this species at Boston, United States, where it is quite naturalized, and pretty plentiful on banks about the city; the flowers uniformly smaller and paler than is usual in Europe.

Convolvulus sepium. Everywhere over the island and county, extremely common in moist hedges, thickets, and amongst bushes, in osier-beds, damp gardens and shrubberies, also trailing over the sea-beach occasionally, with leaves more or less fleshy. Var. β . Flowers pale rose-red or blush colour. In several parts of the Isle of Wight, in considerable plenty. On wet slipped land, amongst bushes, above the shore a little to the eastward of Old Castle Point, in some abundance, September, 1840; also in a willow plot betwixt Dean farm and Whitwell, and near Roude. Near Newchurch; Dr. T. Bell Salter. East bank of the Yar, along the edge of Beckett's Copse, August 28, 1845; and with a decidedly rose-coloured limb to the flower, in a large willow-bed betwixt Compton and Dunsbury farms, Freshwater, September 24, 1844. Dr. Salter finds the same deeper tinted variety near Lymington; in this island, however, the corolla is rarely more than suffused with a faint blush of red, though in some parts of England the flowers are found of a deep rose-colour, and I have myself gathered such in Guernsey. A similarly coloured variety appears to be the commoner form in America of this widely-diffused species, which under the foregoing or following states is indigenous over a great part of both hemispheres.* In America the lobes of the leaves are often rounded or angular, but not decidedly truncate; the leaves, petioles and stems either wholly or partially hairy, and the bracts, I think, rather shorter in proportion to the tube of the corolla than in the European plant. In this state it is the *C. repens* of Linnæus &c.,

* In North America, New Holland, New Zealand, Western Patagonia (Darwin), Java (Choisy).

and which I have gathered abundantly in Georgia, on the banks of the Savannah River, May 22, 1847, a little below the city, with both white and blush-coloured blossoms, as in the New England states and this island; but, excepting in the above particulars, themselves by no means constant, I find nothing to distinguish the transatlantic from the ordinary European form of *C. sepium*. My excellent friend Dr. Asa Gray, who so ably fills the botanical chair of Harvard University, ascribes larger flowers to the American variety of *C. sepium*; but though variable in size, the flowers, I think, fully equal with us those of any transatlantic specimens I have seen, being often three inches in diameter in our damp hedgerows, which the ample, pure white corollas copiously adorn from the middle of June till October, or even later. Smith and Wahlenberg profess never to have seen the capsules, which indeed are not very commonly produced. I have, however, gathered them in plenty in many places about Ryde, and elsewhere in this island, as well as near Hastings and at Hampstead. When growing on banks along the sea-shore, or trailing over the pebbly beach, the leaves are commonly somewhat fleshy, and such a variety I find in wet inland thickets occasionally in this island, on the eastern skirts of Blackpan Common. The flowers of *C. sepium*, unlike those of the last, do not close at night or during rain. I have once or twice noticed the corolla to be deeply 5-cleft in this island. A similar variety of *C. arvensis* is recorded by Ray and Sir J. Smith.

Convolvulus Soldanella. On sandy or shingly sea-beach, both in the Isle of Wight and on the mainland. At the lower end of Sandown Bay, towards Shanklin, but sparingly. In drift sand on St. Helens Spit, at its upper or northern extremity, in some abundance, the trailing stems sometimes above two feet in length and rather shy of flowering. In very great abundance on the sandy spit at Norton, opposite Yarmouth, towards its western end, copiously bedecking the ground with its large showy flowers, and seeding freely. All along the south shore of Hayling Island for three miles, sparingly at its east end, becoming more frequent towards its western point. Opposite Cumberland Fort, where it almost covers the sandy hillocks near the Passage House, rampant on the tufts of grass and low herbage, and with very large leaves, but apparently not flowering freely on any part of this extensive line. Sandy shore at Portsea; Mr. E. Lees in New Bot. Guide. The remark of Smith in Engl. Bot., that the flowers of this species expand only in fine weather, and in the early part of the day, does not accord with my own carefully repeated observations. I find, on the contrary, that neither wet nor the total

deprivation of light in close tin vessels have any tendency to produce collapse of the blossoms, which in their native soil continue expanded all day, and if not during the night, which they certainly do when taken up, at least till long after dark. Sir Wm. Hooker has remarked the flowers to be fragrant in Jersey.

Cuscuta europæa. Parasitic on various herbaceous plants, in hedges, &c., but very rare, at least in the Isle of Wight. On wild hops, nettles, and thistles (*Carduus arvensis*), in a hedge betwixt Kerne and Alverstton; Dr. T. Bell Salter, 1840 !!! I have not seen it there for some years past. On vetches in a field at Bouldner, near Thorley; Mr. Robert Gibbs, July, 1848 !!! Near Lake, Isle of Wight (which Lake?); Mr. J. Woods, jun., in Bot. Guide. Near Alton; Rev. G. E. Smith! Dr. Lindley ('Vegetable Kingdom') observes that dodders do not seem to occur much in the tropics. I found two or three species to be very common in Jamaica, and in the island of Grenada observed not only shrubs (*Rivina*, &c.), but trees of various kinds and orders (*Cerbera*, *Bignonia*, *Citrus*, &c.), twenty or thirty feet high, smothered as it were under a gigantic species of *Cuscuta* (not a *Cassytha*), growing in vast abundance, depending from the branches like huge hanks of coloured yarn many feet in length, and hiding a great part of its victims from view in its treacherous snare.

—— *Epithymum*. On furze, thyme, ling, heath and other shrubby plants, but principally on the first of these; very common. On most of our larger heaths and commons in the Isle of Wight, and on the mainland, the low furze bushes may be seen bearing this plant like entangled skeins of red or yellow silk, often with a profusion that can hardly fail to arrest the attention of the most incurious, as on Ningwood Common, between Yarmouth and Shalfleet, Stapler's Heath, by Newport, &c. On *Galium saxatile* by the road-side over Bleak Down, to Newport. So abundant on the furze along the south coast of Hayling Island, 1848, as to fill the air with its unpleasant odour when a damp wind blew over it. On Shidfield Heath; Miss Hawkins. Hursley; Miss L. Legge.

‡?—— *Trifolii*. In clover-fields, apparently of recent introduction, and happily as yet very rare in the Isle of Wight. Abundantly in a clover-field by Thorley Farm, 1842; Mr. R. Gibbs !!! In another field on the same farm, not far from Yarmouth, but on the opposite side of the river,—very sparingly, October 13, 1843; Mr. George Gibbs !!! Not, I believe, since remarked in either station. The simultaneous appearance of this dodder, a few years back, in various parts of England, from the ravages it made amongst clover,

caused a great sensation amongst agriculturists. Assuredly very nearly related to the last species; but the characters have been well pointed out by Mr. Babington, and with these my rather poor and imperfect specimens, gathered when nearly out of flower and half destroyed by the sheep, agree very exactly. The evil, like many others, proved greater in anticipated than in real magnitude, and now the clover dodder is seldom heard of or talked about, having either died out of the country, or through the operation of natural causes been restrained from becoming injuriously prevalent. Mr. Borrer, I believe, found this plant in Sussex more than forty years ago, by which we may conclude it to be no newly-arrived stranger amongst us, and that it would still have passed unnoticed but for the sudden inordinate increase, which gave it an unwelcome notoriety. The acotyledonous and spiral embryo, scale-like appendages to the corolla, leafless and parasitic habit, are surely sufficient characters on which to found the natural order of Cuscutaceæ adopted by Lindley and other eminent botanists.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
April, 1849.

(To be continued).

BOTANICAL SOCIETY OF LONDON.

Friday, May 4, 1849. — John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

‘Flora Hertfordiensis,’ by the Rev. R. H. Webb and the Rev. W. H. Coleman; presented by the authors. ‘Transactions of the Berwickshire Naturalists’ Club;’ presented by Mr. R. Embleton. ‘Journal and Transactions of the Pharmaceutical Society;’ presented by the Society. ‘Proceedings of the American Philosophical Society;’ presented by the Society. ‘Agricultural Magazine;’ presented by the editor.

British plants from Mr. R. Embleton and Mr. T. Kirk.

Mr. Thomas Moore communicated some remarks on a form of the sweet violet (*Viola odorata*), with mottled pale lilac flowers, found in the neighbourhood of Guildford, Surrey. This form was stated to be

larger and more hairy than the common sweet violets (blue) of the same neighbourhood, and showed, besides, the constant difference of having its sepals fringed with short hairs or cilia. In respect to this latter character, the author stated that in all the white sweet violets he had had opportunities of examining, he had found similarly ciliated sepals; whilst in the blue sweet violets, and in another form with flowers of a reddish purple hue, he had as uniformly found the sepals to be quite entire. From these observations, the author suggested that the white sweet violet, usually regarded as a mere variation of colour, might perhaps prove a *bonâ fide* variety, assuming the blue sweet violet with entire sepals to be the typical form of *Viola odorata*. In this view of the relations of the native sweet violets, the white and the lilac flowered, fringed-sepalled plants would be considered as forms of a variety to which the name *ciliata* would be appropriate; whilst the blue, entire-sepalled plant would be regarded as the type of the species. It was mentioned that the white sweet violet had been set up by some botanists as a species distinct from *V. odorata*. Specimens of both forms were exhibited.—*G. E. D.*

Notice of 'A Paper on the Study of Natural History. By W. D. KING. Read at the Mechanics' Institution at Sudbury, March 16, 1849. Sudbury: Wright. 1849.'

WE never recollect meeting with a paper of this kind that so completely fulfilled the conditions required in an address to the Members of a Mechanics' Institution. To assume that the members of such an institution are stolidly ignorant of the most commonplace information; to address them as persons of weak intellect; to withhold all that is useful, and parade before them only that which is puerile, showy, glaring or wonderful: these are errors of every-day occurrence. On the other hand, how often do we not see hired lecturers from London touring the provinces, after cramming themselves with hard names and high-sounding paragraphs, neither of which they comprehend, but which they think are sure to enhance their own reputation, when retailed among those who understand still less! Mr. King's address is perfectly free from both errors: it is extremely simple, clear and intelligible, yet full of information. The style is that of a true philosopher; of one who is so familiar with knowledge that he feels its possession a matter of course: he communicates his infor-

mation as he would read a chapter in the Bible. The value of the matter induces no kind of self-esteem.

We have often thought how much good might be done by circulating addresses like this throughout the length and breadth of the land. Every Mechanics' Institution in particular should have a copy, to serve as a model for members about to address their neighbours and friends.

We select for quotation a botanical passage, to show how agreeable and interesting the most common phenomena become when observed by appreciating eyes, and recorded by an unassuming and graphic describer.

"In spring our woods and groves are gay with the lovely blue hyacinth, and with the varied shades of pink and white of the wild anemone; their colours contrasting finely with the pale yellow of the primrose, and the brilliant golden stars of the *Ficaria*. In few districts, perhaps, do the road-sides and field-hedges offer to the eye of the traveller a greater variety than our own. Violets, blue and white, and of various intermediate shades; the periwinkle, that lovely harbinger of spring; the wild endive, with its scraggy branches, and its large starry flowers of almost cærulean blue; the Canterbury bell, the red and white *Lychnis*, the everlasting pea, the liquorice vetch, the curious leafless yellow vetchling, the borage, that favourite of the honey bee, with its bright flowers, as singular in form as beautiful in colour; the white, and red, and yellow nettles; the delicate, pendant blue flowers of the harebell, waving with the slightest breeze; and the clear white stars of the stitchwort. Nor must we forget a plant which ornaments our banks, and greatly attracts the admiration of strangers—the viper's bugloss. The more minute plants are also well worth notice. In earliest spring, and frequently from amidst the snow, the little *Draba verna* studs our banks, and opens its tiny white flowers. It varies greatly in size in different situations; from five or six inches in height to so dwarf-like a form, that its leaves, flower-stalk, and flowers would not together exceed perhaps one-third or one-half of an inch; and the whole plant, root and all, might rest upon a three-penny piece without overspreading its margin. There is also that curious little plant, the *Adoxa moschatellina*, with its slender stalk and its crown of five round flowers, placed close together so as to form a hollow cube, reminding one of the locking of the warriors' shields of old. Our hedges are garlanded with the wild vine with its graceful tendrils, the large white bells of the climbing *Convolvulus*, and with the wild *Clematis*; also known by its pretty names of 'Vir-

gin's bower' and 'Traveller's joy.' It is the seed of the latter plant, with its silky bunches (so well known to children by the name of 'Old man's beard'), which so conspicuously decorates our hedges in the winter; together with the scarlet berries of the holly, and the bright pink of those of the Euonymus or spindle tree, with their curious tripartite markings. Our chalky banks are richly hung with the fragrant wild thyme, and studded with the frail yellow blossoms of the cistus, and the crimson tassels of the burnet. Our fields abound with the lovely scarlet pheasant's eye, the watchful pimpernel, closing her flowers before rain and when the sun hides his face, the flaunting poppy, the cheerful blue-bottle, and the henbit (*Lamium amplexicaule*), curious from the fact that the flowers it bears in spring are very dissimilar from its summer and autumn blossoms. The buds of this flower are of a beautiful carmine. The pure white blossoms and red stems of the Saxifraga granulata ornament our dry pastures, and the rarer species of golden saxifrage is found in a brook in one of the Cornard lanes. A plant of it is now in bloom amongst some rock-work in my garden. The lily of the valley also occurs in our woods. Its bells of rich perfume are embosomed in its broad, dark green leaf, which contrasts finely with their snowy whiteness. From our youth upwards, what pleasing associations have we connected with the name of this sweet flower. It seems the embodiment of retiring loveliness, and of gentle and modest worth.

"This neighbourhood is rather rich in those beautiful orchises peculiar to a chalky soil. We have the bee orchis, that treasure to a young botanist! the butterfly orchis, and the green-veined meadow one. The fly orchis, which bears a singularly close resemblance to the insect after which it is named, is also said to occur here. The pyramidal orchis is sometimes found on the dry banks, and the broad-leaved in the damp meadows near the town. We have also, I believe, as a rarity, the rich clove-scented orchis in pastures near Bulmer.

"A relation of mine, anxious for a specimen of the first-mentioned of these curious flowers, requested a friend of his, *not* a botanist, to procure him a bee orchis from a spot where it was known to grow. This gentleman searched well and long, and at last thought that beyond all question he had found one, and took out his knife to secure the prize; when lo! *away flew the bee*. Of course he was not previously acquainted with the flower, or he would hardly have made such a mistake. Still, at a little distance the lower lip of the flower *does* resemble the body of a bee engaged in rifling the interior of the blossom, where its head may be supposed to be concealed.

“Our meadows present us also with the rare snake-weed (*Polygonum Bistorta*), the elegant meadow Lychnis, the yellow rattle, and the delicate cuckoo-flower; ‘so called,’ as worthy old Gerarde quaintly expresses it, ‘because it flowres when the cuckowe doth begin to sing her pleasant notes without stammeringe.’ The margins of our streams exhibit beautiful specimens of the water-violet, the rare Cardamine amara, the arrow-head, the flowering rush, the yellow Iris, and that universal favourite, the exquisite little Forget-me-not. I well remember, in my earlier days of plant-collecting, the delight I felt in obtaining, when from home, a specimen of the elegant flowering rush, which I then thought a prize indeed; little imagining at the time, that our streams offered an abundant supply. The yellow water-lily abounds, and the white is not uncommon; and who has seen the magnificent flowers and broad floating leaves of the white water-lily, and not been struck with its almost oriental splendour? Where, amidst the most treasured beauties of the conservatory, shall we find so superb a flower?

“We have on Cornard Mere a good locality for bog plants. Here grow some of our greatest favourites; the elegant grass of Parnassus, the lovely fringed flowers of the Menyanthes or buckbean, the sweet little bog pimpernel, and many other plants not otherwise common in this district. Probably the sundew might also be found there, and I should be much gratified to hear of the discovery, for it is a very curious and interesting plant. Its small, round, reddish leaves are covered with glandular hairs, and with globules of a honey-like fluid; and in the hot sun they appear to possess an irritability resembling that of the sensitive plant, and the Venus’s fly-trap of the tropics; for when flies or other small insects, attracted by the sweets, alight upon them, they gradually curl up and enclose them in their folds. What purpose in the economy of nature is thus fulfilled, it is difficult for us to determine; but we may rest assured that some wise and useful end is answered by this curious phenomenon. It is found on Bergholt Heath, near Colchester.

“We must not stay to enter much into a description of the ferns, though scarcely yielding in elegance and interest to any division of the vegetable world. The lady fern (*Athyrium filix-fœmina*) is perhaps the most beautiful. The common brake (*Pteris aquilina*), a section of whose stem, near the root, has been said to represent ‘King Charles in the oak,’ is by no means devoid of elegance. The prickly fern (*Polystichum aculeatum*), the male fern (*Lastrea filix-mas*), and the polypody (*Polypodium vulgare*) are abundant in our hedges; the

latter, with the underside of its fronds studded with drops of golden fructification, adorning the old pollard oaks and willows. The hart's tongue (*Scolopendrium vulgare*) occurs in some spots in beautiful profusion, and its fructification is also exceedingly curious. The hard fern (*Blechnum boreale*) is very abundant in some localities. It covers acres of ground in Cornard and Assington woods. That beautiful fern the spleenwort (*Asplenium Trichomanes*) is found in two or three localities near us; and whether growing on a wall where perhaps the length of its fronds scarcely exceeds half an inch, or on a shady bank where they attain a length of eight or nine inches, it is one of the prettiest of our native species. The black spleenwort (*A. Adiantum-nigrum*) is much more frequent, and is plentiful near Bulmer. The rue-leaved spleenwort (*A. Ruta-muraria*) we have only observed in one spot—the wall of a village churchyard about three miles from us.*

“Not the *flowers* only, but even the *leaves* of plants afford much interest to the attentive observer. They exhibit very great variety in form, character, and colour. Amongst our British plants no fewer than sixty-nine distinct forms of leaf are recognized; as round, oval, pear-shaped, heart-shaped, strap-shaped, spear-shaped, kidney-shaped, crescent-shaped, hand-shaped, arrow-shaped, wedge-shaped, lyre-shaped, winged, doubly winged, feathered, triply feathered, &c., &c. And as to character, some hang on long footstalks, others embrace the stem; some are rough, others smooth, or shining, downy, hairy, woolly, prickly, or thorny; beset with minute hooks, or rough with poisonous spines: and in colour there is as wide a range, from the lightest shades of green and yellow, to the richest tints of the darkest crimson. The seed leaves of plants usually vary in shape from their general foliage; and in many species, the lower leaves and the stem leaves are of very different form.” K.

“* The scaly spleenwort (*Ceterach officinarum*) is not, I believe, a native of this part of England. It flourishes on some shaded rockwork in our garden, and we have raised young plants from the seed both of this species and of the rarer sea fern (*Asplenium marinum*).

“There are 1400 species of ferns known to naturalists, of which about 40 species are found in the British Isles.”

Reply to Mr. C. C. Babington's Defence, in the Case of the Irish Saxifrages. By HEWETT C. WATSON, Esq.

LONG usage has pointed out the fitting course to be taken in argumentative contests, whatever their object or kind; namely, that A, who states the case, shall have the privilege of replying to any opposition or defence by B, and that the matter shall then be left to the verdict or judgment of third parties. In accordance with this customary privilege, the editor of the 'Phytologist' properly allowed Mr. Backhouse (who had constituted himself a volunteer-accuser of the reviewer "C.") to reply to the defence made by "C." I claim the same customary privilege in reference to Mr. C. C. Babington's defence.

First. It is idle verbiage in Mr. Babington to contend for the *sufficiency* of his "series of specimens;" since the series only sufficed to lead him into error. That which led Mr. Andrews to the truth, and the whole truth, was the really sufficient series.

Secondly. I received the letter of April 8th, as mentioned by Mr. Babington. What then? The circumstance of Mr. Taylor having forgotten that he received a certain paper, stated to have been delivered to him, does not disprove the delivery, and much less can it negative my statement of having been "*informed*" that such a delivery was made at Cambridge. Nobody said that the paper reached Red Lion Court. The most reasonable guess suggests, that it would be left in Cambridge, where the botanical editor of the *Annals* was a resident.

For anything which Mr. Babington has now penned in defence or exculpation, the "Case" remains precisely as I stated it in the 'Phytologist' for May last. Moreover, as it was there explained, the matter was not rendered a mere quibbling on or of words. It was strictly one of botanical information and botanical claims;—information concerning facts which corrected certain published errors in Botany, and claims for such facts to be fully and honestly placed before those readers of the *Annals* who had been misinformed.

HEWETT C. WATSON.

Thames Ditton, June 4, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 564).

Cynoglossum officinale. In dry waste and pasture ground, by road-sides, and amongst ruins, rubbish, &c., in many parts of the Isle of Wight, but not very common. On Ryde Dover occasionally, probably now extirpated by building. On the shore beyond Sea View. Very common in some parts of the Undercliff, as at Ventnor, Bonchurch, St. Lawrence. Near Dogkennel and elsewhere, occasionally. Apparently frequent over the county. Near Southampton. Abundant at Lyss, near Petersfield. Plentiful on Langwood Warren, near Winton. In Hackwood and Hurstbourne Priors Parks. Plentiful at Oakhanger, near Selborne.

Var. β . Leaves subglabrous, more or less shining, nearly scentless. *C. officinale*, var. *C. subglabrum*, Merat. Nouv. Fl. des Env. de Par. p. 73. *C. officinale*, β . Bert. Fl. Ital. ii. p. 298? (in part at least, excluding references to *C. sylvaticum* of Smith and others). On hedgebanks and more shady places than the last. At Bank End, by St. Lawrence; and at Eastend, Bonchurch. A slight variety merely of the common hounds'tongue, and in some specimens hardly to be distinguished from the usual form by the characters just mentioned. The fœtor of the plant resides probably in the down of the leaves and stem; it is not surprising therefore that the smoother variety should be nearly scentless. The true *C. sylvaticum* of Smith, *C. montanum*, *Lam.*, is a very different thing from the above variety, and has been indicated to me as found at Wheely Down, near West Meon, by the Rev. E. M. Sladen, but farther inquiry seems advisable before admitting it into the flora of this county, though a plant likely enough to grow within our limits. The rare *Asperugo procumbens* may possibly be found hereafter to inhabit this county, as it is alleged to grow in the adjoining ones of Sussex and Dorset, on the authority of the 'Botanist's Guide.'

† *Borago officinalis.* In dry waste places, amongst rubbish, by road-sides, on hedgebanks, and in dry pastures; naturalized. Not unfrequent in the Isle of Wight, in hedges adjacent to cottage gardens. At Sandown, Arreton, Yarmouth, &c. On rough pasture ground below Little Buddle farm, by Niton, 1843. In 1837 I ob-

served part of a clover-field at Bonchurch quite blue with it. In similar places on the mainland of Hants, and equally frequent. Said to be originally from the east, a rather indefinite term, but Bertoloni appears to regard it as indigenous to the countries around the Mediterranean, and truly wild in Italy.

†*Anchusa sempervirens*. In waste places, amongst ruins, by roadsides, and on shady hedgebanks in lanes: a very doubtful native of this county and island, nor have I ever seen it myself in any situation within our limits where it could with propriety be held indigenous. At Niton; Mr. Curtis, who thought it wild there, and has figured it in his superb work on British Entomology, from a specimen gathered at that place. Naturalized in the garden of Montpellier House, Ventnor. I have gathered it truly wild on weedy banks in shady lanes near Plymouth, and in the Channel Islands. All the eastern stations I have seen, as near Norwich, &c., look to me problematical.

Lycopsis arvensis. On dry banks, waste ground, and amongst corn in light, sandy soils. Not very general in the Isle of Wight, and observed principally on the greensand in East Medina. Seen frequently about Lake, Sandown, Shanklin, and in the sandy fields above Sandown Bay, towards the Culvers. Very common in sandy fields about Newchurch and Arreton. Frequent, I presume, over this as most other English counties, in similar soils, though I have no special memoranda of a plant so generally distributed throughout the kingdom to quote for the mainland of Hants.

Symphytum officinale. By weedy river and ditch-sides, and along moist hedges in watery lanes, &c.; frequent in the Isle of Wight and county generally. Abundant along the marsh ditches in Sandown Level, both with white and purple flowers. By Bow Bridge. At Shorwell and Luccombe. Frequent on the moors betwixt Bridge and Budbridge, and various other parts of the island. Abundant about Winchester, where, as well as in the Isle of Wight, the var. *β*. *S. patens* of Sibthorpe is almost equally common. A lovely variety, with the flowers of the deepest purple rose-colour, I gathered in a wet place below St. Cross, near Winton, May 28; and the same has been found at Sandown, in this island, by Mr. Curtis, and figured by him in Brit. Entom. iv. tab. 155. Mr. Curtis noticed at the same time "specimens with flowers of the richest purple, and others entirely green." The scales in the tube of the corolla are curiously fringed with prismatic teeth or points, resembling in form and transparency the purest icicles. *S. tuberosum* may possibly be found in this

county, as it is the prevailing species in some parts of the north of England, and in Scotland, whilst in France their distribution is exactly reversed, *S. officinale* being the ordinary Comfrey of the northern departments, and *S. tuberosum* the more common species in the southern and Mediterranean provinces. About Montpellier the latter abounds, where I do not remember ever to have remarked the former.

Echium vulgare. In dry sandy or chalky pastures, waste ground, the borders of fields, by road-sides, and on old walls, not uncommon, but less frequent in the Isle of Wight than on the mainland of Hants. On Carisbrook Castle walls. Sandy fields betwixt Alverstton and Bardwood, and about Queen Bower, frequent. Sandy fields behind Colwell Heath, one of which, June 17, 1841, was absolutely blue with it, and where at the same time I gathered a variety with flowers of a permanent and beautiful rose-colour. About Alum Bay, and in numberless other parts of the island. Common about Winchester, Andover, &c. I do not recollect having found this plant with white flowers in our county, though not an unusual variety in England, but I have gathered a remarkable form of it in Sussex, about Old Shoreham, well known to Mr. Borrer, which, in the deep purple of its blossoms, diffuse growth, and broadly elliptical stem-leaves, makes an approach to *E. violaceum*, but wants the oblong root-leaves of that plant, not to mention other differences between them. I think I once found the same form near Exeter: it seems deserving of further attention. In the Isle of Wight the Viper's bugloss is scarcely obnoxious to the farmer, and seldom intrudes upon his grain crops, but in the corn-fields of Cambridgeshire the wheat is much infested by its presence, and which, with the poppy and larkspur, it often helps to make "unhospitably gay." My worthy friend Dr. Darlington, himself a practical farmer, in whom the utilitarian and the lover of nature are happily blended, denounces the Viper's bugloss as a "vile foreign weed," and prudently warns his agricultural brethren of Pennsylvania against allowing it to gain a footing on their farms, since it has already evinced itself a troublesome intruder in certain parts of the United States.* When we consider what a number of European plants have earned the rights of citizenship in that country, by complete incorporation with the aboriginal flora, and how few America has given us in return for our not always welcome immigrants, the comparative immunity of its territory, from the host of injurious

* Fl. Cest. p. 119; and 'Agricultural Botany,' p. 123.

weeds that encumber the corn and other tillage lands of one quarter of the globe, and severally test the skill and vigilance of the European husbandman in their eradication or subjection, naturally excites surprise and inquiry into its probable cause. I was forcibly struck with the relative paucity of corn-field plants, both as regards species and even individuals, in that country, compared with their prevalence and variety at home; a difference certainly not attributable to better farming, but to the fact, I think, that the number of social plants, or those endowed with great power of occupancy, is much larger on this than on the other side of the Atlantic, which is quite in accordance with an observation made long since by Humboldt, that in approaching the equator, whilst the amount of species increases, the individuals of each kind diminish in number, grow farther apart, or in other words, become less social or gregarious.

Pulmonaria angustifolia. In woods, thickets and copses, on hedgebanks and along the borders of fields, exclusively on the tertiary or freshwater formation, and particularly on damp, or even wet clay soils; abundantly over the greater part of the Isle of Wight north of the central chalk range, especially in the eastern part of East Medina, and that portion of the western hundred nearest to the latter, occupying an area of several thousand acres. Plentiful over the whole of the woody country south and west of Ryde, to the Medina and the foot of the chalk hills, on and beyond which, on the greensand, gault, &c., not a specimen is to be seen. In Quarr Copse, Firestone Copse, Whitefield and Combley Woods, Briddlesford and Chillingwood Copses, &c., in great plenty. Rarer in West Medina, in consequence of the limited area of its favourite formation in that hundred, but plentiful in and about Parkhurst Forest, and frequent in damp thickets and copses along the river between Newport and Cowes. Var. β . Leaves very narrowly lanceolate, Ger. em. p. 808, fig. 3 (bona). Not uncommon. Var. γ . Flowers white. Rare. In a little copse near the Medina, by New Fairlee, near Newport; Mr. George Kirkpatrick!!! (The leaves in this variety are extremely narrow).

On the mainland of Hants the *Pulmonaria* appears confined to the hundred of the New Forest, where the geological features of the country accord with those of the opposite shores of the Isle of Wight. How far it extends over this district I am at present unable to say, but I find it plentiful about Lymington and Boldre, and recorded as growing at Holbury in the New Forest, throughout which it is probably distributed. I have never seen it or heard of its being found in any other than the extreme south-western part of the county, which dif-

fers considerably in botanical character from the remaining districts, as before remarked. The "blue cowslip," as it is here familiarly styled, is one of the earliest of our spring flowers, beginning to blossom with us in March, and continuing in that state till June, but is in highest perfection about April or beginning of May. The corolla, which is reddish in the bud, first becomes violet, and lastly ultramarine blue, of intense brilliancy, but fading ere long into dull blue or purple. Host, Reichenbach and others have unjustifiably made many species out of our *P. angustifolia*, dependent on the insertion of the stamens, which present two modifications of position. 1st, when the style is elongated so as to exceed the calyx, the filaments spring from the middle of the tube, and are then so shortened as to make the anthers appear nearly sessile; 2ndly, in such flowers as have the style shorter than the calyx, the filaments are more than doubled in length, the anthers then occupy the top of the tube, are no longer sessile, and have between them five small tufts of erect, pellucid hairs. The same two-fold arrangement of the stamens and difference in the length of the style, is common in *Primula* and other genera of its natural order, between which (*Primulacæ*) and the present (*Boraginacæ*) there are many strong points of affinity. In one or other of these cases, in *Primulacæ*, at least, the anthers are abortive, and it is probably so in *Pulmonaria*, as I find the nuts in general very sparingly matured, they usually falling away before ripening, and commonly but one or two of the four are perfected in the same flower under any circumstances. The length of the stamens relatively to that of the tube has no connexion with the dimensions of the latter. When the stamens exceed the tube, the filaments are very apparent, but when the anthers are situated within and below the mouth of the tube, they seem, from the extreme shortness of the filaments, to be quite sessile; in that case the little fascicles of white hairs occupy their usual place at the upper margin of the throat. These connivent tufts exhibit the rudiments of a valvular structure at their base, and doubtless serve the same purpose as the more perfect valves that close the mouth of the tube in other *Boraginacæ*, the office of which can scarcely be to protect the anthers from injury, since these are as often above the former as below them.*

As before remarked, many false species, and even a genus (*Bes-sera*), have been manufactured out of *P. angustifolia*. Such are *P.*

* The plaits at the orifice of the tube in *Primula*, and the scales which converge over that of *Samolus*, are analogous to these organs in *Boraginacæ*.

mollis (Curt. Bot. Mag. L. tab. 2422, certainly only a variety, and that a very slight one. *P. azurea*, of Besser's 'Enumeratio Plantarum Volkyniæ,' &c., and of the 'Primitiæ Floræ Galliciæ' (Bessera *azurea*, *Schult.*), it would be no difficult undertaking to match exactly from the Hampshire woods. Bertoloni in *Fl. Italica* has very judiciously reduced these and some other supposed species to their true station as varieties of *P. angustifolia*, which presents infinite gradations in the breadth and narrowness of the leaves, size and intensity of colour in the flowers, and in the pale nebulous spots on the foliage, which are sometimes very large, confluent, and cover nearly the entire disk of the leaf, at other times small, few and distinct, more rarely wholly absent. The shortly pedicellate flowers in a terminal leafy cluster of about three primary divisions, make the inflorescence in its early stage appear capitate, but in more advanced growth it becomes spreading and subpaniculate, the clusters a little recurved. The root-leaves increase very greatly in size after the flowers are past, and are conspicuous the winter through in the damp, clayey woods, but give place to fresh ones in the spring.

‡*Pulmonaria virginica*. In the ruins of an old castle near Netley Abbey, far from any house, and apparently wild; Rev. Norton Nicholls in Bot. Guide! In a wood through which the road passes, about two miles and a half from Newport, Isle of Wight, to Ryde, as common as *Scilla nutans* in our woods; Mr. Griffith in Bot. Guide. From the former of these stations I have seen specimens in the Banksian herbarium, now in the British Museum, but I feel persuaded the second is an error, and that it may be easily traced to the authors of the 'Botanist's Guide' inadvertently subjoining the then quite recent detection of *P. angustifolia* in this island by Mr. Griffith in 1804, to their announcement of the American species as having been found near Southampton. I have nevertheless carefully searched the woods betwixt Newport and Ryde on the chance, small as it was, of finding that foreign species naturalized therein, seeing it did once occur in the county, although in a very suspicious locality. The wood in question I imagine to be Combley Great Wood, as through that and Firestone Copse the old road between Newport and Ryde appears not many years since to have passed. On the present line there is no wood through which it can run within the alleged distance of two miles and a half from Newport. In the present case there seems to be ground for acquitting Mr. Griffith of the commission of a blunder, although in other instances he incurs the imputation of being a careless or inaccurate observer.

?*Pulmonaria officinalis*. In similar places with the last species, but far more rare, if, indeed, it be distinct therefrom; nor does it seem to have been gathered in the subjoined localities subsequently to the date of its first discovery in that station, and which itself rests on very uncertain authority. Common in Exbury Wood; Mr. Rudge in Bot. Guide: but there are strong grounds for suspecting that *P. angustifolia* was the plant intended both in this and the remaining stations quoted in that work,* and I believe Mr. Borrer has searched at Exbury in vain for specimens. The figure in E. B., t. 118, depicts a form of *P. angustifolia* very frequent in the county, with broad, ovate, upper stem-leaves; that given in tab. 1628 of the same work as the true *angustifolia*, is likewise a very common form here, as are also figs. 2 and 3 of Gerard's Em., the latter representing the extreme narrow-leaved state of the plant, such as I have often gathered in this island, and to which my examples with white flowers likewise belong. That there is a *Pulmonaria* found in various parts of Europe, and very common in English gardens, if not wild in some counties, having the root-leaves broadly cordate-ovate, and which is the *P. officinalis* of Linnæus and others, cannot be doubted; but excepting in the greater breadth of the lower leaves I do not know in what it differs from *P. angustifolia*, which last, in some of its broader forms, approaches the other pretty closely. I confess, however, to having never seen a complete amalgamation of both species by an unbroken series of connecting links, or such examples as there would be any difficulty in referring to one or the other; and since the geographical distribution of the two plants is not quite the same, and the continental botanists, who enjoy better opportunities of studying them in a native state than we do, are generally agreed in keeping them distinct, it is perhaps advisable still so to consider them in the absence of positive evidence to the contrary.

Lithospermum officinale. In woods, copses, on bushy banks and in dry stony or waste places, corn-fields, &c., but not very common, at least in the Isle of Wight. In Quarr Copse, by Binstead, in the pits or hollows (old stone workings), not unfrequent. At Nettlestone

* That of a wood by Holbury House, in the New Forest, given as if on the authority of Ray, is in fact due to John Goodyer in Gerard Em., and from reference to the figure, is plainly *P. angustifolia*. Merrett's station of Kinswood, or rather Kingswood, by Mr. Loggins (Pinax, p. 99), though referring to Gerard's figure of *P. officinalis* (Herball, p. 808, p. maculosa), is in all likelihood our *angustifolia*, as these plants were then not properly distinguished, and Merrett, who was himself scarcely more than a compiler, does not appear to have seen specimens.

Point, and along the shore between it and the Priory. Frequent in Bloodstone and Eaglehead Copses near Ashe, and elsewhere in the island. Near Fontley Mill; Mr. W. L. Notcutt. Probably frequent throughout the county, but I have not paid attention to the point as yet.

Lithospermum arvense. In corn-fields and waste ground, very common. Often much too abundant amongst corn at Bembridge, Cowes, &c., and I presume of equal frequency throughout the county.

OBS.—*L. purpuro-ceruleum*, distinguished by its large tubular flowers of the most vivid azure, and narrow, very acute leaves, should be looked for in chalky woods and thickets.

Myosotis palustris. In clear pools and ditches, on the banks of streams, and in marshy places; a frequent plant in mainland Hants, but singularly uncommon in the Isle of Wight. In a boggy meadow by the stream side a little above Calbourne village, or towards Calbourne Lodge. Margin of a small pool in the Brick-kiln Butt, facing Wackland farm house; the late Mr. Robert Loe, Sept., 1843 !!! In moist ditches, not uncommon; Mr. W. D. Snooke: but I fancy the next species to be the one which Mr. S. had in view, and which is often taken for the true forget-me-not. Profusely in various places along the stream from Selborne church to Oakhanger and Short Heath, enamelling the margin of the limpid brook with its lovely sky-blue flowers and herbage of the liveliest green; very fully in flower, September 17th, 1848. About Bishopstoke. Wet place by the road-side between Boldre Bridge and Passford farm, near Lymington. Wallington, Maindell, &c.; Mr. W. L. Notcutt; and in many other places.

—— *repens*. In similar places with the last, as likewise in moist woods, and far the more common of the two, which are often confounded together. Frequent in the Isle of Wight, as in the marsh ditches about the Wilderness, abundantly, and elsewhere. A very common species in the county generally.

—— *cæspitosa*. In ditches and pools, but not very frequent, at least in the Isle of Wight. In Sandown marsh ditches, not uncommonly. In a small pool in a field near Coppid Hall, by Havenstreet. In one of the cuts or drains at the entrance of the marsh at Easton (Freshwater Gate), which was quite filled with it July 18th, 1843. Profusely abundant in a pool formed by the stream a little above Mottiston Mill. Ditches in the meadows at the bottom of Brading marshes; Mr. Wm. Wilson Saunders. I have no mainland station at present to record for this species, but I can scarcely suppose it to

be less frequent there than in the island. Besides the very good technical characters, this most distinct species is marked by its pale green, watery hue, its smooth, shining, translucent aspect, and extremely cæspitose mode of growth, its matted roots and lax interwoven stems, forming tufts of great magnitude and weight in the water of the ditch or pond, which it sometimes fills up entirely.

Myosotis sylvatica. In woods and shady places; very rare? At Lyss, near Petersfield; Rev. G. E. Smith! The only example of this beautiful species I have seen from the county, which I owe to the kindness of its discoverer, is remarkably pubescent all over. It will probably be found in other parts of Hants, but it is a much more frequent plant in the north than in the south of England.

——— *arvensis*. Common almost everywhere in open fields, fallows, waste ground, on hedge-banks, and in shady places, groves, &c.

——— *collina*. On wall tops, banks and waste ground in dry, sandy soil; very common during spring and early summer in the Isle of Wight, and doubtless over the entire county as well.

——— *versicolor*. In like places with the last, as also in moist meadows and pastures; very commonly.

Solanum nigrum. In waste ground, about houses and farm yards, on dunghills, rubbish-heaps, in neglected gardens, and in sandy places near the sea; very frequent in the Isle of Wight, and I believe over the whole county. At Ryde, on the Dover, &c., frequent. Plentiful, and very large in some sandy or gravelly pits on the spit below St. Helen's, where, as amongst the sand-hills and on the flat beach of the south shore of Hayling Island, it grows in its most truly natural and wild state. Common about farm houses and in weedy gardens in most parts of the island; at Sandown, Bonchurch, Ventnor, Cowes, Arreton, Godshill, St. Helen's, &c. Portchester; Fareham; Mr. W. L. Notcutt. I have remarked it in various places on the mainland, but have neglected making notes of a plant so generally diffused over the south of England as this. Several varieties, some of them perhaps species, occur on the continent of Europe, and which will probably be found to inhabit Britain. Of these the most remarkable and distinct is that with berries of an orange red, *S. miniatum* of some authors, and a variety with the fruit of a yellowish green when mature, is found in Sussex and other parts of England, and will probably be discovered in Hants. I have only found the common black-berried form here as yet, which, with some insignificant differences in aspect, is widely dispersed over the temperate and warmer parts of the globe. The common American form, *S. virginianum*, differs in no

respect from the ordinary European state of the species, but I have gathered in the West Indies (Trinidad) a variety with a more slender habit and smaller flowers and berries than in the English plant, which is much used by the negroes as an ingredient in their vegetable soup called callaloo, and a similar use is made of *S. nigrum* by the blacks in Africa and in the Mauritius. In this county the garden nightshade passes for an active and poisonous plant, and at one time obtained some repute in medicine. To judge from its appearance and smell, it is the last thing one would choose to make soup of, though in the process of stewing it may become as innocent, and I dare say quite as palatable, as "nettle brose," which the author of the useful and agreeable 'Flora of Forfarshire' extols as delicious. The flowers of *S. nigrum*, gathered in warm, close weather, occasionally exhale an odour of musk as powerfully as do the blossoms of *Mimulus moschatatus*, as I have myself remarked, but the smell is very transient, ceasing in a few moments after it becomes perceptible.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
May, 1849.

[To be continued.]

On the Wiltshire locality for Lysimachia thyrsiflora.

By T. B. FLOWER, Esq., F.L.S.

IT is only within a very recent period that the attention of botanists has been more especially directed to the geographical distribution of British plants. And since the publication of Mr. Watson's valuable 'Cybele Britannica,' together with the many excellent local floras and interesting contributions to the pages of the 'Phytologist,' much valuable information has been obtained, both as regards the distribution and range of species. And although much care has been taken of late years to avoid the propagation of error, through the medium of these sources, yet occasionally it cannot be prevented; and of which the following will afford a striking illustration. Having had, for some time past, considerable doubts as to whether *Lysimachia thyrsiflora* could be considered truly indigenous in Wiltshire, there is now, I believe, every reason for supposing, from information I have been able to collect, that this rare plant has been introduced into the county, by the late Mr. Sole, of Bath. Mr. Babington, in his 'Flora Bathoniensis,' gives the following station for it:—"In a marsh to the

right of the footpath from Wraxhall to the 'Horse and Jockey.'" The late Mr. Jelly, in his 'Flora Bathonica,' which, from unforeseen circumstances, was never published, gives the locality in these words: "Sides of the Avon going to Tiverton."

Sole, in his 'Flora Bathonica,' written in the year 1782, with an intention of publishing it, but which his death prevented, writes the following:—"I have not yet had the good luck to find this plant, but having had it given me, I have planted it in a low place by the side of the Avon, 100 paces below Mr. Brett's timber-yard—where it flourishes very well." This I make no doubt is the same station alluded to by Jelly, his Flora having been written some years after Mr. Sole's death, and therefore he could not have known of its having been planted by Sole in the locality mentioned. The plant has not been found in this station for some years. With regard to the Wraxhall station, I have more than once been told, by persons who were well acquainted with Mr. Sole, that he was frequently in the habit of bringing plants into this locality, with a view of introducing them into the neighbourhood of Bath: therefore I think we may fairly presume that the *Lysimachia* was planted here also. And what is rather singular, it has now disappeared from this locality; not a single specimen, as far as I can learn, having been found since 1841. These statements, I think, very clearly show that the plant has been introduced into the neighbourhood of Bath, and can have no further claims to be considered indigenous; and that we should not be too hasty in deeming an introduced plant truly wild.

T. B. FLOWER.

Seend, near Melksham, June 14, 1849.

Notice of 'A Manual of Botany; being an Introduction to the Study of the Structure, Physiology, and Classification of Plants.' By JOHN HUTTON BALFOUR, M.D., &c., Professor of Medicine and Botany in the University of Edinburgh.

It would be difficult to point out any instance of more judicious appointment to a Botanical Chair, than was made in the choice of Dr. Balfour to perform the duties of that office successively in our two principal northern universities. In each instance a competition occurred which excited at the time a lively interest in botanical circles. It was a struggle between special qualifications for the responsible

office of academical instructor on the one side, and on the other side, established name and fame in the technical department of botany. Undoubtedly a very high compliment was paid to Dr. Balfour in giving him the preference over Dr. Walker Arnott, who had acquired for himself a forward position among systematic botanists, and also over Dr. J. D. Hooker, whose paternal name there were strong grounds for believing he would worthily maintain. The compliment of such a preference, we repeat, was a high one, by the confidence thus shown in the sufficiency of Dr. Balfour's qualifications; and from all we have since heard of Professor Balfour, as botanical instructor, the compliment was not more high than it was just and merited. We can fortunately express such an opinion now without in any degree disparaging the scientific merits of the unsuccessful competitors, whose claims to botanical distinction must rest on quite different grounds, and on grounds which are not contested with them by the same competitor.

From his present position in an university of such well-established reputation for scientific lectures, and from the circumstances under which he was appointed to the chairs both of Glasgow and Edinburgh, a 'Manual of Botany' from the pen of Professor Balfour will naturally be looked at with some curiosity and no little interest. The impression left on our mind from so much of the work as we have been yet enabled to examine, is certainly a favourable one. We do not pretend to have read through upwards of six hundred closely-printed pages of an elementary publication; but we have turned over many of its pages, and have read portions selected here and there through the volume, with attention bestowed and with gratification received. We judge it to be a very complete and comprehensive digest of the subject; one excellently adapted for the use of students of medicine, for the assistance of whom, we may suppose, it was primarily designed.

Dr. Balfour unites much medical experience, as well as chemical and physiological knowledge, with a lively zeal and earnestness in the promotion of botanical knowledge. Through this union of the needful qualifications in its author, the 'Manual of Botany' seems likely to prove just the kind of publication most suitable for students of medicine, by a judicious selection of the facts and principles, illustrations and explanations, which are best calculated to interest and instruct that class of students, without the foolish overloading of their memories with matters comparatively useless and irrelevant to their own professional objects, sometimes rather unfairly forced on stu-

dents of medicine, by the non-medical professors of botany. Indeed, we should conceive that Balfour's 'Manual of Botany,' with Babington's 'Manual of British Botany,' for the sake of a little practice in discriminating genera and species, would together constitute almost a sufficient botanical library for those students of medicine, and these are the great majority, who seek for a general outline of the subject only, and who prudently avoid trespassing too largely on their professional time, by attempting to follow up botany as a particular pursuit, either during their studies, or in after life when engaged in the absorbing duties of professional practice. From such works as the Manual now before us, a pretty ample knowledge of botanical doctrines and principles may be acquired without much interference with the more strictly professional branches of medical science; and perhaps, too, with advantages sufficient to compensate for that degree of interference which must inevitably occur from giving up any portion of time and attention to the learning of a subject which is quite of secondary importance in professional education, and of no importance in professional practice. We write not in ignorance or unadvisedly, in saying that we should carefully avoid employing any physician, in his professional capacity, who was very eminent as a botanist. And yet we do not the less believe and maintain that academical chairs of Botany ought always to be filled by individuals who have been educated to medicine. It is not necessary that a teacher of botany should be one who is advancing the science by original research and discovery, or by adding to accumulated stores of knowledge on the subject; but it is quite necessary that he should know well what has been done and ascertained by others; and, to our thinking, it is so desirable as to be almost a necessity, that he should have been brought up as a medical man, whether actually in practice or not so.

It will not be understood from our preceding and very willing testimony to the value of the 'Manual of Botany,' in its totality as a new work, that we do not find some small faults of detail in its pages. In some instances, we observe the earlier and therefore less perfect views given, instead of the later and more matured views of the same author on the same subject. For example, in quoting from Hewett Watson, on the subject of types in botanical distribution, the author of the Manual should not have copied them from the publication of 1835 (Remarks &c.) in preference to the later dated one of 1847 ('Cybele Britannica'), particularly with the use of the present tense, which implies that the arrangement now in use by this writer, is still the same as that of 1835. Some of the errors of detail are quite curious,

as instances of sheer inadvertences escaping the author's notice both in writing and in correcting the press. As an example of these, we may refer to page 481, where the familiar *Oxalis Acetosella* has by some mischance got placed in the order of *Polygonaceæ*. Of course these trifling blemishes will disappear in a second and revised edition, which we shall hope and expect to see shortly. But enough of opinion, we should wish to let the author explain and illustrate himself, by a few extracts, placed before the readers of the 'Phytologist.'

"In the compilation of this Manual of Botany," writes the author in his preface, "the object has been to give a comprehensive, and, at the same time, a condensed view of all departments of the science. Attention is directed, first, to the elementary structure of plants, and the functions of the simplest tissues, and then to the compound organs, and the functions which they perform. In the consideration of these subjects, the works of Jussieu and Henfrey have served as a model. The application of physiology to agriculture, both as regards the cultivation of plants and their diseases, is brought under notice; the works of Liebig, Mulder and Johnston having been consulted. In the important subject of classification much aid has been derived from the standard work of Lindley. The system adopted is that of De Candolle, but in the arrangement and definition of the natural orders Walker Arnott has been chiefly followed. Many important hints have been derived from Henslow's excellent Syllabus, as well as from the systematic work of Endlicher. In detailing the properties of plants, care has been taken to notice all those which are important in a medical and economical point of view, Christison, Royle, Burnett and Lindley supplying valuable data. In the chapter on the geographical distribution of plants, a very general view is given of the principal facts brought forward by Meyer, Schouw, Humboldt, Berghaus, Watson and Forbes; and in Fossil Botany the labours of Brongniart, Ansted and Hooker have been made available."

"The relation which Botany bears to Medicine," we are correctly told in the author's 'Introductory Remarks,' "has often been misunderstood. The medical student is apt to suppose that all he is to acquire by his botanical pursuits, is a knowledge of the names and orders of medicinal plants. The object of the connexion between scientific and mere professional studies is here lost sight of. It ought ever to be borne in mind by the medical man, that the use of the collateral sciences, as they are termed, is not only to give him a great amount of general information, which will be of value to him in his after career, but to train his mind to that kind of research which is

essential to the students of medicine, and to impart to it a tone and a vigour which will be of the highest moment to his future investigations." "In the prosecution of his physiological researches, it is of the highest importance that the medical man should be conversant with the phenomena exhibited by plants. For no one can be reckoned a scientific physiologist who does not embrace within the range of his inquiries all classes of animated beings; and the more extended his views, the more certain and comprehensive will be his generalizations."

In remarks bearing on 'cyclosis,' the Author writes thus:—"The elaborated sap is sometimes clear and transparent, at other times it is milky or variously coloured and opaque. By Schultz it has been called *latex*, and the vessels transmitting it have been denominated laticiferous. The latex contains granules which exhibit certain movements under the microscope. These were first noticed by Schultz, who has written a very elaborate treatise on the subject." "Schultz looks upon the latex as a fluid of vital importance, and similar to the blood in animals. His views are opposed by Mohl, Tristan, and Treviranus, who consider the latex as a granular fluid containing oil, resin, and caoutchouc, which exhibits molecular movements only when injury is done to the vessels containing it." "The plants in which the movements are best observed, are those in which the latex is milky or coloured, such as various species of *Ficus*, *Euphorbia*, and *Chelidonium*. In fig. 223 [we cannot extract the woodcut here] there is represented a small fragment of a leaf of *Chelidonium majus* (*celandine*) which shows the currents of orange granules in the laticiferous vessels, their direction being indicated by arrows. From observations made last summer, I am disposed to agree with Schultz's statements. It is true, as Mohl remarks, that any injury done to the part examined causes peculiar oscillatory movements, which speedily cease. Thus, if the young unexpanded sepal of the *Celandine* is removed from the plant and put under the microscope, or if the inner lining of the young stipule of *Ficus elastica* be treated in a similar manner, very obvious motion is seen in the granular contents of the vessels, and this motion is affected by pricking the vessels or by pressure. In order to avoid fallacy, however, I applied the microscope to the stipules of *Ficus elastica*, while still attached to the plant and uninjured; and I remarked that, while pressure with any blunt object on the stipule caused a marked oscillation in the vessels showing their continuity, there could, nevertheless, be observed a regular movement from the apex towards the base,

independent of external influences, when the stipule was simply allowed to lie on the field of the microscope without any pressure or injury whatever. This movement continued for at least twenty minutes during one of the experiments, and I have no doubt might have been observed much longer. It is of importance to distinguish between those molecular movements which are caused by injury and pressure, and those which depend on processes going on in the interior of the living plant. My experiments are by no means complete, but they lead at present to the adoption of Schultz's opinion relative to the existence of cyclosis."

C.

BOTANICAL SOCIETY OF LONDON.

Friday, June 1, 1849.—George Cooper, Esq., in the chair.

The following donations were announced:—

A parcel of specimens from the Azores; presented by Thomas Carew Hunt, Esq., Her Majesty's Consul at St. Michael's.

Foreign plants from M. Sagot.

Robert Holland, Esq., of Cirencester; W. M'Ewen, Esq., of Arundel; and T. G. P. Smith, Esq., of Liverpool, were elected members.

The continuation of Dr. Ayre's paper 'On the Botany of Thame, Oxfordshire,' was read.—*G. E. D.*

DUNDEE NATURALISTS' ASSOCIATION.

Tuesday, June 5, 1849.—The President in the chair.

A paper was read by Mr. W. M. Ogilvie, F.B.S., being a botanical visit to the Den of Balthayock, Perthshire. Amongst the plants observed, were *Lychnis viscaria*, *Paris quadrifolia*, *Cystopteris fragilis*, and *Ceterach officinarum*. Mr. Ogilvie remarked that he had also found the *Ceterach* about five miles further east, in the Den of Pitroddie, where it had been pointed out to himself and Mr. Lawson by Mr. David Gorrie, of Errol. *Anomodon viticulosus*, *Hypnum complanatum*, *striatum*, *velutinum*, *populeum*, *curvatum*, *triquetrum*, *alopecurum*, and *ruscifolium*, *Pterogonum gracile*, *Weissia curvirostra*, *Trichostomum canescens* β . *ericoides*, *Bryum crudum* and *ligulatum*, *Orthotrichum coarctatum*, *Zygodon Mougeotii*, *Fissidens*

taxifolius and adiantoides. Most of these mosses were in fruit. *Jungermannia furcata*, *bidentata*, and *curvifolia* in fruit, with a number of commoner species. *Stereocaulon nanum*: Mr. Ogilvie remarked, that this was the third time that this rare lichen had been found in Britain, and all at a short distance from Dundee; it having been first discovered at West Water, Fifeshire, by Mr. Wm. Gardiner, and also in the Den of Airlie, Forfarshire (see 'Flora of Forfarshire'). Specimens of the various plants illustrative of the paper were exhibited.

Two papers were read from Mr. Geo. Lawson, F.B.S., Edinburgh, intitled respectively 'Botanical Rambles around Edinburgh,' and 'Scrambles on Samson's Ribs and Salisbury Crags.' The object of these papers was to make the members of the Association aware of the progress of Flora in the Edinburgh district.

Mr. Ogilvie also read a short paper on the *Oxalis crenata*, as to the desirableness of its introduction and cultivation in Britain as an article of human food.

Mr. Charles C. Maxwell, Dundee, was elected a fellow.—*W. M. O.*

Remarks on the genus Atriplex.

By JOSEPH WOODS, Esq., F.L.S., &c., &c.*

PERHAPS it is not wise for a botanist to publish speculations which do not arrive at any satisfactory results; yet the sum of our knowledge is made up of so many minute particles, that a person who adds a very little to what had previously been observed may afford considerable help to future investigators. It is with this view that I venture to offer to the Linnean Society a few remarks upon the genus *Atriplex*, which, as far as the English species are concerned, had slept in undisturbed repose from the time of Sir J. E. Smith till Babington, in his Manual, awoke it to new life and doubt by the insertion of several additional species.

The first of these is *A. nitens*, a common plant in the east of Germany, and reaching as far north as Hamburg. It belongs to a division having a mixture of hemaphrodite flowers, producing horizontal seeds; while the seeds of the female flowers, like those of the other divisions, are vertical. The division I believe is sound, but

* Read before the Linnean Society, April 17, 1849.

in one specimen of *A. littoralis* I have found a few horizontal seeds, which were probably produced by hermaphrodite florets: such a case however is exceedingly rare. M. Moquin-Tandon says that the sepals or, as he calls them, bracts of the fertile flowers are altogether separate. I do not find this to be the case: they still remain slightly united at the base. Mr. Babington supposes *A. nitens* to have been introduced accidentally at Ryde in the Isle of Wight, the only British habitat. I do not know if it has ever been cultivated as a spinach. This has doubtless been the case with the *A. hortensis*, another species of this division which has not been naturalized in England, nor perhaps in Europe. It has not the silvery scales on the leaves which characterize the preceding species. The third species of this division found in Europe is the *A. vineta*, said to be cultivated about Verona, but according to Willdenow is wild at Venice on the shores of the Adriatic; adding however that the native plant differs "toto cælo" from the cultivated one. Willdenow distinguishes this from the two preceding by the toothed sepals of the fruit; Moquin-Tandon, from *hortensis* by the leaves glaucous beneath, and the lanceolate form of the upper ones, and from *nitens* by the even, not reticulate, sepals. M. Moquin-Tandon puts the Veronese plant among those not sufficiently known, and does not notice the Venetian one.

The second addition is *marina*. Linnæus in his *Mant.* 11, gives a plant under this name as found in England, and distinguished from *littoralis* by its serrated leaves and small stature. Babington makes no mention of the latter peculiarity, but adds that the perigone is closed, while in *A. littoralis* the sepals are spreading. I do not however find that the sepals of *A. littoralis* are usually spreading, except that they are often a little turned out at the top. It is acknowledged that the serratures of the leaves form not an absolute, but only a comparative character, and the species must be considered as doubtful. I find only *A. littoralis* in the neighbourhood of Lewes; but *marina* seems to be plentiful on the banks of the Thames. Moquin-Tandon doubts whether *littoralis* be anything but a variety of *A. hastata*; a conjecture for which I see no grounds whatever.

The preceding species offer no peculiar difficulties. Those with no hermaphrodite flowers, and a tendency to produce hastate or triangular leaves, are not so easily arranged. There are some particulars in the fructification which ought to be understood before we proceed to their investigation. In the first place, the size of the seeds is not uniform, and in some species there are distinctly two forms. Those

of the smaller calyces are round, slightly depressed, black and shining, while those formed in the larger calyces are much larger, even so much as to have occasionally three times the diameter of the upper seeds, considerably more depressed, of a dark chestnut, and though shining, wrinkled or shagreened: intermediate forms more rarely occur. The second thing is, that the sepals are at first small and smooth, but enlarge with the ripening fruit, and become tubercled on the back; while in some species the lower sepals occasionally become a pair of leaves including several flowers, and in those above them, the sepals, though they inclose a seed, still retain more or less of a leafy character, and rarely produce any tubercles on the back. This is particularly the case with *angustifolia*.

The next species I have to mention is *A. erecta*. Smith admitted an *A. erecta*, but he says it is very rare, while Babington's plant, in one form at least, is of all *Atriplices* the most common, and there is perhaps hardly a corn-field in the kingdom without it. Smith's character, "calyx of fruit all over armed with sharp tubercles," is softened by Babington into "perigone of the fruit more or less muricate on the back." It is probable that any specimen referred by Smith to *A. erecta* would also be so named by Babington, but certain that a great majority of Babington's plants would have been considered by Smith as belonging to *angustifolia*. I think the two species different, but I should find it difficult to characterize them. In the tubercles on the back of the sepals there is no difference beyond that already mentioned, and the lower sepals in *erecta* also occasionally become leaf-like. Yet the large leaf-like calyces are rarely if ever met with in *erecta*, and all the largest calyces in *angustifolia* are without tubercles. In the smaller calyces the tubercles seem very uncertain in both. In the normal form (but by no means the most common form) of *A. erecta* the central stem is erect, but it is sometimes so in *angustifolia*; and again, in the form of *erecta* which is so common in our corn-fields, the stem is usually as prostrate as that of any variety of *angustifolia* except the maritime one. Perhaps the spikes are rather more branched in *erecta*. I have not found in either any of the large, brown, wrinkled seeds.

The next species is *A. prostrata*. The name I believe must be changed as having been already applied to a New Holland plant. I have never seen a specimen. Babington professes himself but slightly acquainted with it. He rests upon the leaves, the calyces (cordato-triangular), and the flowers in separate clusters; but his description of the spikes is the same as in *patula*. The lower leaves are hastato-

triangular, as distinguished from ovato-hastate, with two horizontally spreading lobes; the middle leaves have two ascending lobes from a wedge-shaped base, a form extremely common in *Atriplex*, but not described in *A. patula*: the upper leaves are lanceolate in both. Babington suspects it may be a maritime form of *patula*. Moquin-Tandon refers it to a variety of his *A. hastata* corresponding with the *A. triangularis* of Willdenow. Koch considers Babington's plant as a form of *A. latifolia*, which is his name for the *A. patula* of Smith. Koch quotes also *A. oppositifolia* of DC., but thinks the prostrata of the 'Flore Française' a different plant. Yet Duby quotes the Fl. Fr. for the prostrata of Bouchier, the author from whom Babington has adopted the species. Although Babington suspects it to be a form of *patula*, he describes the seeds as smooth and shining.

Next comes the *patula* of Smith, which Babington agrees with that author in considering to be the *patula* of Linnæus also, both I believe relying on the herbarium. I confess however that the description of the leaves, "sub-deltoido-lanceolate," agrees better with those of *angustifolia*. The *A. hastata* of Linnæus has been brought back by Moquin-Tandon in the 'Prodromus' to this plant, and he adopts the name *calotheca* to the species which has of late years been considered as the *A. hastata* of Linnæus. I am disposed to think that he is right. The seeds here are described as rough and opaque. The lower seeds are indeed finely granulate, but not *asper* nor hardly *scaber*. I have never met with dull seeds in this or any other *Atriplex*, but this granulate surface has the effect of producing a degree of comparative dulness.

We next have *microsperma* of W. & K. This species Koch refers with the preceding to his *latifolia*, from which it is distinguished by its smooth and shining seeds, and by the smaller size of the calyx of the fruit; according to Babington the leaves are denticulate, but he says this also of *patula*. The form of the sepals varies too much to enable us to depend upon a difference between triangular, rhomboid and ovato-triangular, and what I have already said of the seeds is sufficient to show that a character drawn from them must be received with caution. I am willing to admit as three common species, *angustifolia*, with rhomboid leaves, and all the seeds black and smooth; *patula*, with triangular leaves, and all, or nearly all of the seeds depressed and wrinkled; and *deltoidea*, with triangular leaves, and all, or nearly all the seeds thick, black and smooth. With *microsperma* I am unacquainted.

Next is *rosea*, and it is here that I am most completely at issue

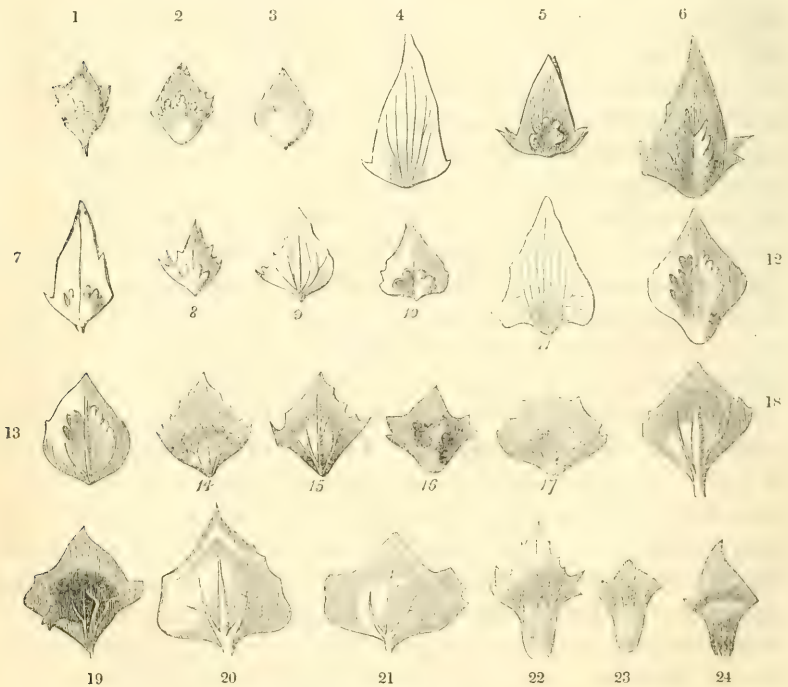
with Mr. Babington, and contend that his *rosea* has nothing to do with the *rosea* of Koch and of Duby. The plant I have gathered for *rosea* in the south of France and east of Germany is a more self-supporting plant than most of the genus; the lower branches indeed spreading, but by no means horizontal and decumbent, as they are in *patula* and *angustifolia*, and not unfrequently in *erecta*. The stems and branches are of an uniform buff colour, instead of green with resinous stripes, as in all the preceding species. This seems to me a character of great importance among the *Atriplices*; at least within the range of my experience I have not observed it to vary. The *rosea* of Babington is generally prostrate. It is perhaps a good species, though nearly allied to some of the forms of *A. patula*. I have some suspicion that it is the *A. crassifolia* of the 'Prodromus.' Koch relies on the indurated and whitened calyx, and the union of the sepals above the middle, for separating *rosea* and *laciniata* from the other species. Babington drops these characters, and in his plant the calyx of the fruit is often as dark as it is in *patula*.

I have four forms belonging to the section with buff-coloured stem and calyx, which I suspect may be as many species. The first is that of our sea-shores, with the fructification very much among the leaves, the character which Koch gives as distinguishing *rosea*. The second has long spikes, the upper part of which is naked, the leaves hardly occurring above the branches. This, from the description, I suppose to be the *laciniata* of Koch and others. The third is the self-supporting plant already mentioned. I take it to be *rosea* of Koch and of Duby, as it certainly is Reichenbach's notion of the *alba* of Scopoli, usually attributed to *rosea*. In all these the calyx is nearly square, and more or less tubercled on the back. In the fourth, which occurs with the preceding in the south of France, the calyx spreads from a campanulate base, and is usually without tubercles. I cannot with any confidence apply names to these from preceding authors. The first is certainly the English *laciniata*, and I think also identical with the one authentic specimen of the Linnean herbarium; but Linnæus says the stem is erect and the leaves deltoid, which can hardly be said of our plant. The second appears, as I have already said, to be the *laciniata* of Koch and Deby, and I believe of all modern continental botanists. Perhaps also it may be that of Linnæus. In both these the fruit is often stalked. The third is, I apprehend, the *rosea* of Duby and of Koch, but there is in the south of France an intermediate form with naked spikes, the lower leaves of which are hastate and deeply sinuate, while the upper are lanceolate and linear,

and nearly or quite entire. In what I have supposed to be *laciniata* the leaves are rather ovate or deltoid, and all nearly similar. The fourth seems to have been hitherto unnoticed; and if it should prove distinct from the second, I would call it *campanulata*. But the form of the sepals varies so much in these plants that I dare not place much reliance on it.

The seeds in all the plants of this set are similar, brown, compressed, and of a waxy surface.

I will conclude with a few observations on the sepals of the fertile flowers, for I cannot help thinking that more extended and more



Sepals of *Atriplex* as specified below.

exact observations will at length show some definite limits to the variations in their forms, and enable us to make more use of them in the specific characters. There is a continued, though not indeed a very regular progress from ovate to hastate or triangular, to rhombic, to a square placed diagonally, and thence to campanulate, a slightly waving line on the two sides of the square or rhomb forming an easy transition to campanulate with an extended termination. In the figures on the

preceding page (all of which are to a double scale), 1, 2 and 3 are from *littoralis*; 4, 5 and 6 from *angustifolia*; 7 and 8 from *erecta*; 9 and 10 belong to *patula*; and 11 is from a dwarf and imperfect specimen in Mr. Borrer's collection, gathered at Sidlesham, near Chichester (perhaps also *patula*); 12 and 13 are from the *rosea* of Babington, the first from Newhaven, the second brought by Mr. Lingwood from Havre; 14 belongs to what I consider as the *rosea* of Koch, but I must confess that the leafiness of the spike is not in it a strongly marked character; 15 and 16, from Toulouse, are taken from the plant I have mentioned as intermediate; 17 and 18 from the prostrate form of the *laciniata* of continental botanists, with all the leaves nearly similar,—they were collected at Arles; 19, 20 and 21, from Kent, belong to our *laciniata*. If this name should be ultimately attached to the continental plant, perhaps the English one might be called *arenaria*, from its usual habitat. It seems to occur in the west of France and in Portugal. The three last belong to what I have proposed to call *campanulata*: the two first from Toulouse, the last from Arles.

JOSEPH WOODS.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 580).

Solanum Dulcamara. In woods, thickets and hedges, especially such as are rather moist, by river-sides, and in watery, bushy places, also on the sandy or pebbly sea-beach; extremely common throughout the island and county. Var. β . Stem and leaves downy. *S. Dulcamara*, β . *tomentosum*, Koch, Syn. Fl. Germ. *S. littorale*, Raab. Nearly as common a form in this island as α ., but variable in the degree of pubescence. On the Dover, and elsewhere about Ryde, &c. Var. γ . Stems much branched, diffuse or prostrate, not scandent, and, as well as the somewhat fleshy leaves and very angular branches, downy and almost hispid, with spreading or partly curved hairs. *S. lignosum* seu *Dulcamara marina*, Ray, Syn. ed. Dillen. p. 205? *S. Dulcamara*, γ . *marinum*, Bab. Man. p. 224. On the sea-beach. In loose sand of the shore at the Priory, betwixt Ryde and St. Helen's. Southsea beach, Portsmouth. In my specimens the leaves are all auricled, and the plant scarcely differs from var. β ., except in not being climbing. Var. ϵ . Flowers white. Rare. In a street at Ryde;

Mr. Dawson Turner (ex Snooke, Fl. Vect.) Sandown Bay, and betwixt Calborne and Brixton; Mr. G. Kirkpatrick. I think I have seen it on banks of wet slipped land in Whitecliff Bay, in this island.

Atropa Belladonna. In woods, thickets and waste shady places, along fences, amongst ruins, and on the sea-beach, but not common in the county, and extremely rare in the Isle of Wight, if not quite extinct there. Near Knighton House, under the palings near the gardener's cottage, in considerable plenty; Mrs. Charles (now Lady) Brenton. The plant which was found by Lady B. several years ago is now quite extinct at Knighton, but a coloured sketch made by her from a living specimen at the time, removes all doubt of any mistake as to the species.* It has never occurred to myself in the Isle of Wight since the above account was received, and alterations made on the premises, or perhaps a knowledge of its dangerous qualities, may have caused its extirpation in the only known station at Knighton. In various places along the shore between Southampton and Netley, on the shingly beach, and under palings and banks. Near Warnford; Rev. E. M. Sladen. Old Park Wood (West Meon?) and Warnford; Miss L. Sibley. King's House, Winton. Road-sides at Otterbourne, abundant (still?); Rev. Messrs. Garnier and Poulter in Hamp. Repos. In very great abundance in several parts of Longwood Warren, where it was first indicated to me by my very zealous friend Miss G. E. Kilderbee !!! As this place possesses peculiar features, and abounds with a vegetation of a character in keeping with its own wild and dreary aspect, a short account of it may be interesting. Longwood Warren constitutes a tract of elevated ground, the centre of which is about three miles south-east of Winchester in a direct line, and swarms with rabbits noted in the market for their superior flavour.† Part of the warren has been enclosed from time to time and converted into arable, but a great deal yet remains in a state of nature, and could never probably be brought under profitable cultivation. The soil to me appears to be diluvial, and to consist principally of coarse sand or gravel, and pebbles, with I think a mixture of comminuted chalk; in most places parched and arid in the extreme,

* The common woody nightshade of our hedges (*S. Dulcamara*) is often called deadly nightshade by the uninformed, and being supposed the genuine plant of that name, has unjustly attributed to it all the virulent properties which belong only to the latter.

† Miss L. Legge, of Hinton Ampner, informs me that these animals devour the leaves of the *Atropa* with avidity, and strip the plants of their foliage as high as they can reach up the stem to browse upon it.

and sinking down under the feet as if compressible, in other parts spongy and overgrown with moss and lichens, but nowhere wet, marshy or boggy. The surface is in some places bare as the sea-beach, but for the most part is overspread with a scanty covering of plants, amongst which *Sedum acre* is from its abundance especially conspicuous. Two nearly parallel curved valleys, with gently sloping sides formed by the undulating ridges of the down, traverse the warren in a direction about north and south for perhaps a mile in length, and like the rest of the tract are perfectly destitute of trees, but studded with patches of stunted thorn and elder, like oases in the general wilderness around. Shade there is none but what these bushes afford, and the verdure when approached is anything but tempting to repose amidst the lurid vegetation of this valley of Hinnom. All the fetid, acrid, venomous and unsightly plants that Britain produces seem congregated on this blighted spot, a witch's garden of malevolent and deadly herbs, ready for gathering into her cauldron, which for aught I know may be nightly simmering and seething in this lone spot, as fitting a rendezvous for the powers of darkness on Hallowmas-eve, as their favourite Blocksberg in the Hartz forest, for a Walpurgisnacht commemoration. Beneath and around the clumps of ragged moss-grown elder and hoary stunted whitethorn, the first in some respects itself a "plant of power," meet shelter for the noxious brood it gathers about it, rise thickets of tall nettles and rank hemlock, concealing the deadly but alluring dwale,* the fat dull henbane, the gorgeous fox-glove of life-depressing faculty, the rampant nightshade, gifted with fatal energy in popular imaginings, and one at least of an uncertain and treacherous race, if free itself from the stain of bloodguiltiness; whilst scattered over the thriftless soil appear the black mullein (*Verbascum nigrum*) with its lurid leaves, the caustic and grotesque wake-robin, the stinking black horehound (*Ballota nigra*), and the drastic mandrake (*Bryonia dioica*, sic *Vecticé dicta*), which trails its gray-green cucumber-like shoots in singular abundance over the naked and stony surface.† The smell on a hot summer's day from such a multitude of ill-favoured weeds as these, and more which might be mentioned, is far from refreshing, and quite overpowers the fragrant

* Dwale I imagine to come from the Dutch *dwalen*, to err or go astray,—or more immediately perhaps from the obsolete verb *dwaule*, to be delirious; the loss of sense and reason being the most prominent symptom induced by this poison. Mr. Gardiner ('Flora of Forfarshire') tells us that the fruit is called in Scotland "daft-berries" on the like account; "the insane root, that takes the reason prisoner."

† A decoction of the roots of the Bryony is employed by our cattle leeches in

honeysuckle, the only sweet and innocent thing that lives to throw a charm over what is else but dead, dreary and baleful. The *Atropa* will be found in great plenty not only in these valleys, but on the borders of the warren in various other places, rising to great bushy plants, and loaded in July and August with their fatal but too enticing berries. Were Longwood Warren less secluded and nearer to Winchester, the extirpation of this virulent plant would be a matter of public necessity, for the avoiding of accidents to children or ignorant persons.

The Peruvian *Nicandra physaloides* is occasionally met with in this island, partially naturalized, in and about gardens and by road-sides, but occurs too seldom, and is not sufficiently persistent where found, to entitle it even to an alien's place in the Hampshire flora. The common European winter-cherry (*Physalis Alkekengi*), the near ally of this and *Atropa*, is more likely to be found native or naturalized in the south of England, since it grows truly wild in the north of France, Germany and Belgium, under our latitudes, although scarcely so far to the westward as any part of Britain, and not in the vicinity of the sea-coast. It is, however, recorded in the Dillenian edition of Ray's Synopsis as having formerly been found at Stockport, in Cheshire.

Hyoscyamus niger. On dry waste ground, pastures, village greens, by road-sides, especially near towns and on calcareous soils, also along the sea-beach and on the high downs; tolerably frequent over the entire county and Isle of Wight. Frequent on waste ground, in farm-yards, old chalk-pits, and about houses in very many places of the island; in more truly natural stations on the sea-shore of Thorness Bay, East Cowes, and other parts of its coast, as also on the top of the high chalk downs, not uncommonly. Shores of Stoke's Bay. Frequent on Longwood Warren. Andover; Mr. Whale. Stubbington; Mr. W. L. Notcutt.

‡*Datura Stramonium*. By road-sides, in waste and cultivated ground, about towns, on dunghills, and in newly turned-up soil of fields, gardens or building lots, here and there sporadically, and scarcely persistent long together in any one spot. In various parts of the Isle of Wight, but by no means common, and chiefly confined to garden ground, coming up amongst potatoes &c., and in most cases

some diseases of sheep; and I was told by the Rev. C. Hardy, of South Hayling, that a root was dug up a year or two ago in the island of that name, which weighed 47 lbs.

originating probably from prior cultivation of the plant as a popular remedy for asthma, for which purpose it is commonly preserved in rustic gardens. It used formerly to be found sparingly on Ryde Dover, but has not been seen there for many years, the progress of improvement having effected the destruction of this and many other plants which flourished on that spot before it was so much built over. In a lane at the north-east end of Godshill; Mr. W. D. Snooke, from whom I learn that it was common there some years ago, but I cannot find it now. A weed in the garden of the Shanklin Hotel, and in garden ground at Niton and Godshill, spontaneous. In Northwood Park, near the circular reservoir, on ground formerly a garden, a good many plants, and more disposed to spread itself than I have remarked here in general, September 21, 1844. I do not remember having noticed it in mainland Hants, nor has it been indicated to me by any of my county correspondents; there can, however, be little doubt that it occurs under similar conditions across the Solent to those in which it is found on this side of the water, and perhaps more frequently, as being a plant of decidedly eastern and continental distribution in central Europe. In Britain it seems to be more frequent and less fugacious in the eastern counties of England, and to become rare or extinct towards the western coast, but our summers are not warm enough for its free dispersion by seed, which is hardly to be regretted, for the thornapple is a troublesome and noxious cumberer of the ground in countries more congenial to its propagation. In Hungary I have seen it lining the road-sides for miles, and growing beneath the windows of the villagers in rank exuberance. In the middle and southern states of America, as at New York, Philadelphia and Charleston, the plots of ground left vacant for building upon are often covered by a little forest of *Datura Stramonium*, and its purple variety *D. Tatula*, which last I have never met with spontaneous in England, but have occasionally seen it in gardens. That they are only varieties I have convinced myself by tracing them through every intermediate shade betwixt blue and white. It is now, I believe, generally conceded that the thornapple is of Asiatic, not American origin, as indeed its latinized generic name *Datura*, of Arabic derivation, goes very far to prove, besides that the species was known before the discoveries of Columbus. There seems ground, however, for believing that in common with some other plants it was indigenous to the warmer parts of both continents, and that a nearly allied species, if not the same with the *Stramonium*, has been known in Mexico from the time of Cortes.

Verbascum Thapsus. In woods, hedges, dry pastures, by roadsides, on banks, wall-tops, and amongst ruins; common in most parts of the Isle of Wight and mainland Hants, most abundantly where the soil is calcareous, and often of gigantic growth (six or seven feet high). Var. β . Leaves less downy, bracts longer than the calyx. In a little lane between Brading Down and the lane leading from Adgeton to Morton; Dr. T. Bell Salter!! Dr. S. thought this might be the *V. thapsiforme* of Schrader (Monogr. Verb. p. 21), but that species is unknown to me except by description, and the only specimen I saw gathered by Dr. S. was not in a condition to enable me to decide on its identity with Schrader's plant, nor was more than one example found in the station above given.* Very common on declivities of the chalk downs, at their highest elevation. From the texture of the leaves known here sometimes as the "flannel plant." In Canada and the more northern parts of the United States the great mullein is quite an agricultural nuisance, overrunning such tillage lands as are left in lay or not kept properly weeded. With us it keeps pretty much within its legitimate boundaries, and its appearance occasionally in the corn-field may be regarded as purely accidental.

———— *Lychnitis*. By road-sides, in waste places, and on hedge-banks, &c.; very rare in Hants. Hambledon; Rev. Messrs. Garnier and Poulter in Hamp. Repos. My friend George Kirkpatrick, Esq., believes he once found either this or *V. pulverulentum* (*V. floccosum*, *W.* and *K.*) on a rubbish-heap by a limekiln near Carisbrook, most probably the former, as the more generally diffused species in England, but I have not seen specimens as yet from any part of this island or county. The latter plant (*V. floccosum*) has found its way into the catalogue of Hampshire plants, on the authority of Mr. Pamplin (see Watson's 'New Botanist's Guide,' Supplement), as growing about Old Alresford, but on inquiry of Mr. P. that gentleman has no recollection of having met with it there, and cannot account for its communication to the work referred to, nor has Mr. Forder, who resides at Old Alresford, ever fallen in with it in his neighbourhood, although a plant too singular in its appearance to be overlooked even by a tyro in Botany, did it really exist there. In Britain it is of pre-eminently oriental distribution, and almost exclusively confined to the two easternmost counties of England—Norfolk and Suffolk, where, as about Norwich and Bury, I have seen it in great plenty by

* This is most likely the *V. bracteatum* of Agardh, and of Presl; an apparently rare and very little known species or variety.

road-sides and in old pastures. The only recorded Scottish station in the Den of Cullen appears to me a most improbable one to be correct, and I think has not been confirmed by any botanist since the time of George Don. When repeating the experiment some years ago in Suffolk, of striking the plant to produce the falling away of the corollas through their irritable contraction, I accidentally inhaled a quantity of the loose flocculent tomentum, which gives the entire plant the appearance of being powdered with flour, and experienced very unpleasant sensations of heat and constriction in the throat and chest for several hours afterwards, accompanied by cough and defluxion from the mucous membrane of the nostrils, threatening inflammation of the respiratory organs.

Verbascum nigrum. In similar places with the two foregoing species, but very rare, or at least extremely local in the Isle of Wight. Near Arreton and Merston; Mr. W. D. Snooke!!! I find it in several places about Arreton, but more especially abundant along the hedge-banks of two fields on either side of the road from thence to Merston, near the foot of St. George's Down. Very sparingly by Alverston farm, near Newchurch, at the extremity of the Lynch.* Near Ryde; Miss Roberts! but I have never seen it near this town myself. Plentiful enough in various parts of mainland Hants, particularly on the chalk. It abounds for miles all around Winchester, and occurs profusely in some parts of Longwood Warren. Plentiful betwixt Petersfield and West Meon, and about Borden Hill, Oakhanger. A stately ornament to the road-sides and in the shady green lanes about Clanfield, which it adorns in great plenty with its long wand-like spikes of thickly clustered flowers, varying from deep golden to palish yellow, relieved by the dark verdure of its broad root-leaves. Fareham churchyard and Maindell; Mr. W. L. Notcutt. Belgrave Lane, Andover; Mr. Wm. Whale. It is remarkable that the only Isle of Wight stations for this plant are on the greensand, whilst across the water it evinces its usual predilection for the chalk formation above all others.

——— *Blattaria*. On chalky, gravelly or clayey banks, pastures, and by road-sides; a very uncommon plant in the Isle of Wight, if not over the whole county, in a truly wild state; not so unfrequent in a dubiously indigenous or certainly naturalized condition.

* *Lynch* is a name applied to several *woods* in the Isle of Wight, but I do not know the precise force and limitation of the term. The British word for a grove is said to be *llwyn*; perhaps that and the modern provincialism may have a common origin.

Found by me ten years ago in a retired lane leading from Gauson's, or Gaskin's Barn towards Carisbrook, with yellow flowers, and I think certainly wild. I have also gathered the normal yellow-flowered variety near Southampton, but the locality has escaped my recollection. Var. β . Flowers white, copper-coloured at the back. Not very uncommon, but usually in suspicious places near houses or gardens, being in fact that form of the moth mullein oftenest seen with us in cultivation. I have picked it occasionally on the Dover near Ryde Castle, and in Binstead churchyard; in both places the outcast of gardens. I have received it as apparently wild from Swainston, and from near Fern Hill, by the late Mr. J. Tayler,* but I fear only escaped from gardens in both localities. A plant by the roadside betwixt Haslar and Clay Hill, by Gosport, 1848. I have seen it elsewhere in the island and on the mainland of Hants, but never, I think, where it could be deemed truly indigenous. The species is pretty widely spread over England, although rarely, I believe, abundant anywhere, and in the western counties is associated with, or partly replaced by *V. virgatum*, a species not very likely to occur in Hampshire. Andover; Mr. Wm. Whale—(wild?).

Orobanche rapum (*O. major*, Sm. &c.; not it is said of Linnæus). On heaths and in bushy places where furze and broom abound, on the roots of which shrubs it is partially parasitic; rare, at least in the Isle of Wight. On Briddlesford Heath and parts adjacent, on the roots of the furze, not unfrequent; first noticed by Mr. Borrer during an excursion I made with him in 1840 !!! Near Lynn farm, on a bank, a specimen or two, 1843. Amongst broom and furze on an extensive piece of heathy ground betwixt Quarr Abbey and Ninham it occurs in great plenty, and I believe annually so; first found there May 30, 1845. In full flower, and very tall, with many of the lower flowers quite faded, May 28, 1846. In greater abundance this year than I ever remarked it in former seasons. All these stations are in East Medina and in the neighbourhood of Ryde; I have not yet found it in West Medina, nor have I any certain station to record for it in mainland Hants, although I cannot suppose it to be wanting or even very rare in that part of the county. I feel pretty confident of having found it a few years back at Embley, the seat of Edward Nightingale, Esq., near Romsey, but at that time I made no register of any but Isle of Wight plants. Last year many specimens of a tall *Orobanche* were found in a clover-field, in their neighbourhood, by the Misses Sibley, of Hall Place, near West Meon, which I saw in a somewhat

* The family of that name in Ryde spell their name as above, with an *e*, not with an *o*.

withered condition, and ascertained not to be *O. elatior*, although the specimens had not quite the usual aspect of *O. rapum*, with which they otherwise agreed in character, as far as could be seen in that state. A similar tall plant of the genus I also remarked last year, from the top of the coach that runs from the Andover Road Station to Andover, likewise in a clover-field, but had not the means of getting at the only specimen seen.

Orobanche elatior. On the roots of *Centaurea Scabiosa* and of red clover (*Trifolium pratense*)? very rare? Found at Anglesey, near Gosport, as I learn from Miss L. Minchin, who assured me she had it on the authority of a gentleman who knew plants well. Alverstoke: found either by Dr. Pulteney, or by the authors of the catalogue of Hants plants in the 'Hampshire Repository,' so often quoted in these notes. Some carelessness of mine in copying out the notice of this last station, which must be very near the former, prevents me from giving the authority with more exactness, and since I have seen no indigenous examples of *O. elatior*, its occurrence as a Hampshire plant needs confirmation, the more so as other species of the genus are liable to be mistaken for it. I have great reason to think, however, that it was once observed by me in a clover-field south of Carisbrook, some years before I began collecting materials for the island flora, and therefore suffered to pass without due examination and record of the fact.*

———— *Hedera* (*O. barbata*, Bab. in E. B. &c. ; not of Poiret). At the roots of ivy in damp woods, on rocks, walls and shady banks, chiefly, if not exclusively, confined to the back of the island, but there very frequent. At Eastend, Luccombe. Common at Bonchurch,

* Since this paragraph was written, on recurring to my MSS. I find amongst my early notes (1837) the following entry :—“*Orobanche elatior* ? I found a clover-field at the end of Dark Lane, near Carisbrook, quite overrun with it, August 6th. Unfortunately, and at this distance of time unaccountably, I neglected examining the species farther, which leaves it doubtful whether the plants after all might not have been merely tall individuals of *O. minor*, but that species was then quite familiar to me, and is noted as having been gathered abundantly by Godshill the day before. Since writing the above, and on examining a bundle of plants collected in the island five or six years back, I found a single specimen of an *Orobanche* having the characters of *O. elatior*, namely, the stamens glabrous above, but glandular-hairy on their lower and dilated part, yet without any label attached recording the place or date of collecting. I have little doubt, however, but that the specimen was gathered in the above locality, and after drying laid aside and forgotten. It is certainly not *O. minor*, and it possesses neither the characters nor aspect of *O. major* (*O. rapum*). August 22, 1843.”

and on banks at Ventnor.* Abundant about Steephill, in the grounds &c. In Pelham Woods, and generally throughout the Undercliff in moist shady places, and on the ledges of the rocks that shut in that romantic district to the northward. I think I have seen it in Quarr Copse, near Binstead, and in the Priory grounds to the westward of Ryde, but finding no entry made of its occurrence beyond the limits of the Undercliff, I am probably mistaken in these habitats. Assuredly too near *O. minor* in character to be satisfactory, and as a variety of that species I had long deemed it. Latterly, however, I have inclined to a different opinion, and am now disposed to consider it with Mr. Babington as quite distinct. Considerations founded on geographical distribution have principally led to this change of opinion. *O. Hederæ* is quite a southern, maritime, and western plant, and is one of those species that indicate with us the point of transition from the oriental to the occidental type of vegetation. *O. minor*, on the other hand, is as much an inland as maritime species, and its distribution tends rather to the eastern than to the western side of the kingdom in England, whilst it is apparently wanting in Ireland, where *O. Hederæ* grows not unfrequently.† I am not aware of any station for this species in the interior of the county or Isle of Wight, where the clover-fields are overrun with *O. minor* as a pernicious agricultural weed, nor have I ever seen it along any part of the coast even of mainland Hants. The two species differ considerably in aspect, which I think may be fairly adduced as collateral, though not primary evidence of their distinctness. *O. Hederæ* is a slenderer plant in general than *O. minor*, the stems of a deeper purple, and often two, three, four or more from the same swollen base, which very rarely happens in *O. minor*, in which the stems are almost always solitary, or at most two or three from the same caudex. The flowers in *O. Hederæ* are usually fewer, and always more distant than in *O. minor*, besides other differences, such as the shape of the stigma, which it is needless here to advance as arguments for their separation. The figure of *O. Hederæ* in E. B. Supplement, tab. 2859, is admirable, as is the accompanying description by Mr. Babington, who gives this species as perennial without a sign of doubt in the Manual, which the occasional remains of former stems and its habit of growing in clumps seem to confirm.

* The progress of building has gone far to diminish its frequency of late years at these two places.

† All the stations given for *O. minor* in Mackay's 'Flora Hibernica' evidently belong to *O. Hederæ*.

These vestiges of decayed stems must not always be supposed the production of the preceding year, unless found on the plant early in the season, for this species begins to flower in June, and the individual stems quickly spring up and perish, when they are succeeded by others till August, or even now and then later. The perennial nature of *O. Hederæ*, if once indisputably established, would be decisive in favour of its distinctness from *O. minor*, which latter is unquestionably, I think, of much more ephemeral duration.*

Orobanche minor. Parasitic on a variety of plants belonging to very different natural orders, but far most frequently at the roots of clover (*Trifolium pratense*) in natural and artificial grass-fields. Incomparably the most abundant species of the genus in this island and county, infesting our clover-fields so universally and extensively as to come under the head of an agricultural nuisance. It would, I think, be difficult to find a field of clover in the Isle of Wight absolutely without a specimen of *O. minor* upon it, and too often it makes its appearance by hundreds, nay, thousands, on a clover piece of a few acres in extent. Hence it is superfluous to give localities for a plant which is equally plentiful in every part of the island in turn, whatever the soil may be, whether chalk, sand or clay, but which at the same time is permanent in no station, and abounds more in some years than in others. Our farmers are not aware of the damage their clover sustains from this plant, from ignorance of its parasitic attachment, and because it never, I believe, destroys the crop like the clover dodder (*Cuscuta Trifolii*, Bab.), but only weakens and stunts the plants with which the tuberous base of the stem is in subterranean connexion.† The evil not being of very glaring magnitude, and the cause unknown and unsuspected, the *Orobanche* of the clover is allowed to spring up unchecked, and to overrun a whole field, when its eradication by hand might be accomplished with ease before it has had time to multiply inordinately by seed. The broomrapes grow with almost mushroom rapidity, and this one in particular shoots up in a quick succession of individuals the summer through, till quite into autumn, and has as much the look of an annual as the last has of being perennial in duration. There can be little doubt that the seeds remain dormant in

* The *Orobanche* alluded to by Curtis in 'Flora Londinensis,' as growing on walls in Pembrokeshire, is most likely the *O. Hederæ*.

† I have never seen any of these singular parasites visibly connected with a large and healthy specimen of the species of plant to which they severally attach themselves, but have always found their victim a poor, stunted, flowerless thing, sometimes hardly discernable above ground.

the soil till the land comes again in rotation to be laid down in clover, when they vegetate, and a crop of young broomrapes springs into existence, which if pulled up by hand as they come into flower, would have no chance of spreading about the field that season, and if thus carefully weeded out for a year or two might be got rid of altogether. *O. minor* sometimes makes its appearance with us in pots of greenhouse plants; Mr. G. E. Smith and myself have remarked it on *Pelargonium*, and the former has seen it on *Angelica Archangelica* in a garden. Several plants on *Apargia* (*Oporinia*) *autumnalis* on a bank close to Morton Farm, between Brading and Sandown, July, 1843. On *Plantago Coronopus* by the cliffs above Sandown Bay; Mr. J. A. Hankey, June, 1843 !!! Var. β . Herb pale, yellow or amber-coloured. Clover-field by Lee farm, near Shanklin. Var. γ . Flowers pure white or nearly so. In a field near Garrett's, by Newport, in plenty, June 16, 1846. In many of the specimens here gathered the flowers were milk-white, more commonly, however, somewhat tinged with the ordinary purplish colour. Probably common on mainland Hants. West Meon; Miss E. Sibley. In a field near Appleshaw. Near Andover, 1848. Clover-field near Monument Lane; Mr. W. L. Notcutt. In all the specimens of this plant that I have examined, and they are very numerous, the stamens are thickly clothed with hairs at the base on their inner or anterior surface, as Smith also remarks.

Orobanche Picridis. On *Picris hieracioides*; very rare? Observed by myself growing abundantly on the plant just named, July 9th, 1844, upon a ledge of the Freshwater cliffs called by the cliffsmen Rose Hall Green, but supposed to be only *O. minor* at the time. Since then the same plant has been found in Cambridgeshire, by the Rev. W. W. Newbould, and determined to be the *O. Picridis* of Schultz. A careful comparison of my Isle of Wight plant with the excellent figure and description in the fourth volume of the 'Supplement to English Botany,' proves it to be identical with the Cambridgeshire plant in the minutest particular; close proximity of the sea, and consequently the saline atmosphere in which it grows, not having effected the smallest change in its appearance and structure. I visited Rose Hall Green* again this season, at the latter end of June,

* The cliffs between Freshwater Gate westward to the Needles, which rise a stupendous rampart of chalk to somewhat above 600 feet, have the uniformity of their otherwise perpendicular face broken occasionally by sloping ledges or terraces, at various elevations, and by banks of debris accumulated at their base through the falling every winter of vast fragments of the chalk rock, split off by the joint agency of rain and frost. Few of these ledges are accessible to any but the cliffsmen, but some can

and found the *Orobanche* in very great abundance all over its surface, exclusively on the *Picris*. Many of the plants were then quite out of flower, and others only coming into blow; some of the stems were two feet in height, many only a few inches, sometimes very stout and thick, at other times comparatively slender, without reference to their elevation. This species comes too close to *O. minor* not to excite great suspicion that they may be forms of one plant, but when closely examined, the characters, though of the slightest kind, and such as would hardly be admitted as valid in any other genus, do seem by their reproduction in different countries and climates of Europe, to stamp the *Orobanche Picridis* with the semblance at least of specific permanency. Mr. Babington justly observes it has a different look from *O. minor* and *O. amethystea*; the latter I know nothing of practically, but can bear testimony to the truth of the remark as regards

be approached from a boat, and to one or two a tolerably safe but dizzy path conducts the adventurous explorer from the summit of the cliff. These ledges are the fields from which the cliffsmen reap their annual harvest of samphire, which here flourishes in prodigious quantity, and they support besides a luxuriant vegetation, curiously made up of maritime and inland species that grow promiscuously together. The larger of these hanging gardens of Nature's planting, the cliffsmen designate "greens," and the smaller (I think) "meads,"—each having its appropriate name, as Pepper's mead, &c. Rose Hall Green is one of the most extensive of the greens, and can only be approached from the water, and in calm weather, as the surf caused by the almost constant swell is very heavy on the rocks when there is any wind. A scramble of a few minutes over the huge chalk blocks, and up the steep bank of débris by the Wedge Rock, brings you on the green, which is thickly clothed with a vegetation similar to that which covers all the rest, and consisting of that staple commodity, samphire, immense tufts of *Beta maritima*, and quantities of a sturdy-looking species or variety of *Daucus* (*D. hispidus*?), with prodigiously thick and hispid stems, very broad hairy leaves, and great hemispherical, and even perfectly globose umbels; a gigantic form of *Hieracium Pilosella* (var. *peleterianum*?), with short stolons and lanceolate leaves, densely clothed with long shaggy hairs above, snow-white and tomentose underneath; *Parietaria officinalis*, which is here seen in its most truly native state, and in profuse luxuriance; *Picris hieracioides*, with its parasite burden, *Halimus portulacoides*, *Sinapis nigra*, and (very lately found not far from this spot by Mr. Albert Hambrogh) *Raphanus maritimus*—another most interesting addition to our island flora, already so rich in rare and curious plants. Various species or forms of *Atriplex*, *Armeria vulgaris*, *Anthyllis vulneraria* (var. *A. maritima*, Schweig), *Frankenia lævis*, *Hippocrepis comosa*, a maritime variety of *Lotus corniculatus*, &c., &c. are amongst the prevailing species on these magnificent bulwarks of our southern line of coast. The influence of the sea air in giving bulk and obesity to many of the plants inhabiting these shelves of the chalk cliffs is very remarkable, whilst in others it induces no change of structure or appearance whatever.

the former. The very pale, cream-coloured or even milk-white flowers are not discriminative of *O. Picridis*, being found, as before remarked, in *O. minor* occasionally; but the greater curvature of the corolla, at its posterior extremity, in *O. minor*, even in the upper flowers, before the swelling of the ovary could possibly influence the degree of flexion, seems a good distinction, though a mark not very available in description, since one of comparison merely. I cannot say that I perceive the difference Mr. Babington speaks of in the form of the sepals, which varies extremely in both these species, but so far as I have yet examined the two together, the sepals of *O. Picridis* are much longer than in *O. minor*, fully equalling, or even a little exceeding the entire length of the perfectly expanded corolla, whereas in *O. minor* the sepals do not reach beyond the tube of the corolla, which is, I think, also smaller than in the *O. Picridis*. The want of the notch or sinus in the upper lip of the latter is a nice character, about which it is not always very easy to satisfy oneself, for this part of the corolla is folded anteriorly in the centre, so as to have all the appearance of being two-lobed, and a shallow emargination does appear to me often to exist, which emargination is itself very variable in degree on the flowers of *O. minor*. Again, I find, both on a former and recent examination, that in this island the stamens of *O. minor* are quite as hairy at their base within, as are those of our new plant—that is to say, very villous in each species. In *O. minor* the style is with us as it should be, very nearly glabrous, and that of *O. Picridis* hairy (mostly in front) along its whole length, and towards the summit all around its circumference, but as if to nullify the value of this apparently good distinction, the careful and accurate Bertoloni, whose description of *O. Picridis* is excellent, writes, “*Stylus quoque glaberrimus!*” Without by any means intending to affirm that *O. minor* and *O. Picridis* are varieties of the same plant, I cannot help believing that the European species of this genus have been greatly over-multiplied, and that for want of better discriminating marks we have been content to adopt for characters in framing our specific formulas, one of the most confessedly variable conditions of vegetable organizations, the smoothness or hairiness of particular parts. A tolerable degree of constancy in this respect amongst the real or pretended species of *Orobanche*, affords plausible argument for the derivation of distinctive characters from attributes thought usually too mutable to be relied on in most other cases. Bertoloni himself (one not much addicted to “splitting”) describes thirty *Orobanches* in Italy,* yet

* Fl. Ital., vol. vi.

merges *O. Hederae* with *O. minor*, retaining *O. Picridis* as a species. To my perception the first of these has as good a claim to be held distinct as the last from *O. minor*, not so much from the excellence and stability of its technical characters as from its geographical distribution and apparently perennial duration, as well as from a certain difference of aspect, which may, however, be produced from local peculiarities, such as shade and moisture. The capsules and seeds of the various *Orobanches* appear to have received little or no attention, and as far as my own observations have gone, which are restricted to a very few of the commoner species chiefly, they are remarkably uniform in size, shape and colour: still I think characters might be discovered in these organs, if not in all, at least in some of the species, which might help to settle their distinctive pretensions on a firmer footing than they are at present.

Orobanche cærulea, Vill. ? Parasitic on *Achillæa Millefolium*, in pastures and on banks and borders of fields, but very rare. First noticed by the authors of the catalogue of Hants plants in the 'Hampshire Repository,' as growing at Steephill, in this island, but I am not aware that it has occurred since in that locality. Field near the cliff opposite the barracks on Royal Heath, between Sandown and Lake; Mr. J. E. Winterbottom, July, 1841! In a sandy field just beyond Royal Heath, on the foot-way to Shanklin; Miss Phillips, July, 1845!! On the grassy edge of the cliff at the north end of Sandown Bay; Mr. J. A. Hankey, June 21, 1843!!! (several times gathered there since, by myself). A specimen found betwixt Lake and Shanklin, by Dr. T. Bell Salter, in August, 1843; and in June, 1845, the same acute botanist picked another example at Bordwood (a little more inland than the foregoing stations), the largest specimen I have yet seen, being upwards of sixteen inches high, with three or four stout branches from the bottom of the stem. In a pasture field (parsonage glebe) adjoining the rectory at Yaverland, sparingly, August 3, 1843. In particular seasons a good many plants of this species come up in that field, and along the grassy verge of the cliffs by the pathway leading upwards to the summit of Whitecliff Bay, but are extremely capricious and uncertain in their appearance. No other part of the island, save this narrow strip of greensand along the coast line of East Medina, from Yaverland to Steephill, has hitherto yielded this curious, well-characterised and beautiful *Orobanche*, but it may fairly be expected to occur on the same formation along the south-west shore line of sandy cliffs betwixt Blackgang and Freshwater. I have never seen it but on diminutive, starveling specimens of the

common yarrow or milfoil—doubtless so depauperated through its insidious attachment. Near Alton, Hants, June 29, 1621; Goodyer in Gerarde em., p. 228. By the earlier English botanists this species was apt to be confounded with a leafless orchidaceous plant—the *Limodorum abortivum* of Swartz (*Orchis abortiva*, L.), not hitherto detected in England, but perhaps from its geographical range in the north of France and Belgium, no improbable addition at some future time to the British Flora. Goodyer's description, however, leaves no room to doubt that our *Orobanche cærulea* was the plant found by him near Alton, and not the *Limodorum*. In particular he notices the want of a tuberos enlargement at the base of the under-ground portion of the caudex, in which this differs from all our remaining British species. His words are,—“The lower part of the stalk within the ground is not round like *Orobanche* (*O. rapum*), but slender or long, and of a yellowish white colour, with many small brittle roots growing underneath confusedly, wrapped or folded together like those of the common *Nidus-avis* (*Neottia Nidus-avis*).” He goes on to say,—“The whole plant as it appeareth above ground, both stalkes, leaves, and floures, is of a violet or deepe purple colour. This I found in the corner of a field called Marborne, neere Habridge in Haliborn, a mile from a towne called Alton in Hampshire, being the land of one *William Balden*. In this place also groweth wilde the thistle called *Corona fratrum*” (*Carduus eriophorus*). The freshly opened flowers are of a beautiful deep amethyst blue, but quickly become dingy, and the stem has somewhat of a metallic lustre, with an appearance like that of partially rusted iron which has been lightly rubbed over in places with blacklead. I do not see how our plant can be the *O. cærulea* of Villars, in which that author expressly tells us the bracts are solitary,* unless perhaps he overlooked the two lateral and inner ones, which are very narrow, and much smaller than the middle and outer bract. But his rather meager description is not in other respects applicable to our English *O. cærulea*, for although the specific character of “caule simplici basi bulbosa,” may be construed to signify the simple enlargement of the base of the stem, as it occurs with us, the latter cannot be said to be “garnie d'un oignon sphérique,” since, as we have shown above, the absence of a decidedly tuberos extremity to the caudex is a character of our plant, not found, so far as I know, in other British species.† I may here add, that the flower-

* Hist. des Plantes de Dauph. ii. p. 406.

† In very many of the specimens I have examined the caudex is enlarged, not at the extremity, but a little above it, and wholly or partly below the surface, into a fusiform shape.

ing time of our various *Orobanches* begins earlier than the period assigned in the books; *O. rapum* is in Hants a May flowerer, and none of our other species are later than the middle of June before beginning to blossom.

N.B.—*Orobanche ramosa* has found its way (in print at least) into the Hants flora, and if hemp was ever cultivated to any extent in the county, this, its peculiar parasite, may well be supposed to have occurred amongst it. But the *O. ramosa*, β . of the old 'Botanist's Guide,' is, as has been clearly shown by Sutton (Linn. Trans. iv. p. 180), the *O. flore minore* of Ray's Synopsis (Dillenian edition) or our *O. minor*, confounded by Hudson as a variety with the true *O. ramosa*, in the second edition of the 'Flora Anglica,' the genuine *O. minor* not having at that time been recognized as a distinct species, or indeed much known to the botanists of the day. To the possession of the true *O. ramosa* of Linnæus as a species indigenous to Hampshire, we can at present advance no claim.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
July 7, 1849.

(To be continued.)

[The reader will please make the following corrections in Dr. Bromfield's last communication :—

Page 573, line 26, *for* "unhospitably," *read* "unprofitably."

Page 576, *Pulmonaria virginica* should have been printed as a footnote. Line 3, *for* "Volkyniæ," *read* "Volhyniæ."

Page 577, line 13, *for* "Gerard's Em.," *read* "Gerarde em."

Page 578, line 9, *for* "purpureo-cæruleum," *read* "purpureo cæruleum."

I wish distinctly to state that the above are typographical errors, and were corrected in Dr. Bromfield's proof, which unfortunately arrived after the sheets were printed.—E. N.]

BOTANICAL SOCIETY OF LONDON.

Friday, July 6, 1849.—E. Doubleday, Esq., V.P., in the chair, which was afterwards taken by J. Miers, Esq., V.P., F.R.S.

Mr. Jasper W. Rogers read a paper on the Use and Properties of Peat Moss, and the value of Peat Charcoal as a disinfectant and fertilizer. The object of the paper was to show the useful purposes into which the bogs of Ireland could be converted by the extraction of peat from them for its conversion into charcoal. The charcoal extracted from the Irish peat was far preferable to wood charcoal, and one of its greatest advantages was the effect it had as a disinfecting and dedorizing agent. Wood charcoal had not that property to nearly such an extent. It was, therefore, singular now, when there was so much excitement about sanatory matters, that an agent so powerful should have been so much overlooked. It was also valuable as being a powerful absorbant, as it would absorb about 80 per cent. of water, and keep it for the benefit of the soil which might surround it; while it took up the greater portion of the obnoxious gases inherent in night soil and sewage matter, and thereby did away with any bad effect which might result from them. It, therefore, was capable of being converted into a manure of the greatest value,—the proportions being two-thirds of night soil to one-third of charcoal. It was impossible to find a better manure for the food of plants; for, containing as it did a large quantity of carbon, it exhaled the ammonia and the salt which were in the night soil, did not allow them to escape, but treasured them up, and in due time gave them out for the sustenance of the plants placed under its influence. No better agent could be found for improving the sanatory condition of the metropolis. Were a proper system observed by means of this agent, the sewage matter of London could be converted into a source of great profit; while the bad effects arising from the effluvia which emanated from such matter would be got rid of. According to a calculation he had made, the matter so produced by a family of six, would, in the course of a year, if subjected to the influence of this agent, yield £30 per annum; and supposing the cost of the charcoal, and other expenses, to amount to £15, which they could not exceed, there would still be a clear profit of £15 yearly. That might be doubted, but it was a fact, which he had ascertained after the most careful consideration; and he had further ascertained, that were all the houses in London which were rented at upwards of £10 to adopt that system, they would earn a

profit of £15 per house, or three millions of money per annum. In order to do that, they would have to collect the refuse from all these houses into one great cesspool, and then apply the agent he alluded to; and were that done, it would be the best means of clearing the metropolis of that nuisance which now so much affected the health of its inhabitants; for as matters now were, who could stand for an instant in the vicinity of one of those gratings in the street without being sensibly affected by the effluvia which proceeded from it? After some illustrations in proof of his statements, Mr. Rogers concluded his paper by stating that he was about to give the public a proof of the truth of his theory, by erecting an establishment for the purpose of carrying it out. He did not see the smallest difficulty there could be in carrying it out in the metropolis. At the present time, their ashes were collected for the benefit of the parish in which they respectively resided; and why should they not give up the other refuse matter in like manner to the parish, upon a proper understanding? It was true no experiment had been as yet made on a large scale, in order to test the truth of his theory, but the reason was, that charcoal could not be obtained on a large scale. He had been requested by the Guardians of the Poor at Macclesfield, some weeks ago, to try the experiment on a nuisance there; and although the charcoal was of a very bad description, the peat having been obtained from a neighbouring moss, it had been eminently successful, and he had no doubt would be so in every case.

Mr. J. Toulmin Smith said, while he did not deny the efficiency of the agent spoken of by Mr. Rogers, he was a strong advocate for the use of liquid manure, as after long practical experience he had found it best suited for the purposes of vegetation. On his own premises, he had a tank, into which the whole of the excretions were conveyed from the house, and which he pumped out and applied for garden purposes in its liquid state, and he had always found it answer well.

Mr. Rogers conceived that Mr. Smith resided in the country.

Mr. T. Smith: At Highgate.

Mr. Rogers: Well, your system might do well at Highgate; but how was a man to carry it out in the heart of London? There was no doubt that liquid manure was valuable, but the moment it was pumped out of the tank, and came in contact with the air, that moment the ammonia passed from it, and was lost; but when mixed with charcoal, the moment the ammonia came in contact with the charcoal it was fixed, the charcoal acting as a reservoir for it, and giving it out to the plant when it was required.

Mr. T. Smith said, into his tank a large quantity of water was run, and this he conceived was the best agent for mixing the refuse matter, and he thought it would also be the best agent for carrying away the refuse of London.

Mr. Rogers admitted water to be good enough in its way, but when a drop of it fell on one of those particles of charcoal it was retained, and given out as nourishment to vegetation in due time; whereas, if they poured water on the ground, and a bright sunshine was to follow it, it was all absorbed by the atmosphere, and vegetation got no benefit from it.

Mr. Edwin Chadwick said he came there rather to gain information, than to make any remarks of his own. He admitted that there were cases where the agent referred to could be applied with propriety, as he had heard of sugar casks being returned to the West Indies filled with manure disinfected by such a process as that to which their attention was now drawn. He did not, however, think that as regarded London the system could be brought into practical application. The liquid manure he considered was quite sufficient for agricultural purposes. It was easy of transmission, and was now sent a considerable way into the country at a cheap rate, so that he saw no reason for a change; at the same time, he did not discourage such investigations as the present, as the more facts they could bring together on so important a subject, the better.

Several other gentlemen spoke upon the subject, alluding to its great interest; when Mr. Rogers sat down amidst much applause.

Thanks were voted to Mr. Rogers for his valuable communication, which was deemed worthy of the most serious consideration of the inhabitants of London.

DUNDEE NATURALISTS' ASSOCIATION.

July 3, 1849.—The President in the chair.

A paper was read from Mr. David Gorrie, Errol, on the progress of vegetation during the spring and early summer of 1848 and 1849. Mr. Gorrie remarked, that this season had not only lost its comparative earliness, but had fallen very much behind that of last season; the recent frosts, unparalleled so far in the season in this climate, having retarded vegetation very much. This season lost its excess of earliness about the middle of April, when we had some days of

severe winter weather. A comparative table showing the time of flowering of different plants during the two seasons accompanied the communication.

A communication was read from Mr. George Lawson, Edinburgh, on the occurrence of *Nematelia virescens*, a fungus found on the Sidlaw Hills, and new to the Forfarshire flora.

A mounted collection of British and foreign grasses, and other plants, was exhibited as a donation to the Association from D. E. Smith, Esq., Edinburgh. Plants were also received from Mr. Geo. B. Simpson and Mr. W. M. Ogilvie.

Note on Count Suminski's Recent Observations on the Reproduction of Ferns.

THESE observations are so valuable, and place the subject under discussion in so novel and so interesting a light, that we hope shortly to devote several pages to an analysis of the author's remarks: at present this brief note must suffice.

Prior to the publication of Suminski's work our knowledge of the reproduction of ferns may be thus stated. The frond of a fern bears on its back, edge, or elsewhere, certain clusters of somewhat spherical bodies, each supported on a short stalk: these bodies burst by a fissure transverse to their axis, and scatter a quantity of minute particles. The particles falling on the ground, or becoming attached to any moist substance, vegetate and produce a flat, semitransparent, perfectly cellular leaf, much resembling a *Marchantia*, from the upper surface of which a true circinate frond is subsequently developed, and this is rapidly followed by others until the plant has assumed its ordinary appearance, and the *Marchantiform* leaf has decayed and disappeared. Although called by a variety of very curious and ingenious names, authors are agreed in considering the spherical bodies the representatives of capsules, and the particles which they contain the representatives of seeds.

Suminski, applying the microscope to the upper surface of the *Marchantiform* leaf while yet in a very young state, has detected certain minute sessile bodies which he considers analogous to the stamens and pistils of flowering plants: the stamens or antheridia are somewhat spherical, and are generally seated near the base or that part of

the leaf where it is attached by minute radical fibres to the soil or substance on which it grows: the author has seen these anther-like bodies burst and emit granules of pollen: beyond the antheridia, and nearer the distal extremity of the leaf, are seated the pistillidia; these are more elongate than the antheridia, are longitudinally quadripartite as though composed of four united styles, and have a fissure at the extremity through which the tube of the pollen-granule enters and fecundates the ovule in the usual manner: the author has actually observed the tube of the pollen-granule within the pistillidium. The ovule, seated in the ovary at the base of the pistillidium, after fecundation is speedily matured, and when ripe germinates *in situ*, the radical fibres passing through the cellular leaf in search of a suitable nidus, and a small circinate frond simultaneously arising from the upper surface. Now supposing these observations to be correct, and we have every reason for believing them to be so, we must no longer regard the clusters on the back of a fern-frond as its fructification, but rather consider the supposed capsule as the analogue of a spathe, and its contained particles as flower-buds, which, falling to the ground, develope and expand into a corolla—the cellular leaf—having its proper stamens and pistils, and its true seed, we must regard as formed in the ovary at the base of the pistil.

The discoveries of Suminski are somewhat corroborated by a fact well known to those who cultivate ferns in the Wardian cases: if the atmosphere be kept thoroughly damp by an abundant supply of water, and a careful exclusion of the arid external air without, clusters of the corollas or Marchantiform cellular leaves will appear on the backs of the fronds, and after a while young plants will be seen arising from the centre of each; a phenomenon precisely analogous to the germination of grains of wheat in a wet autumn while the corn is yet standing.

But the interest of these observations is not confined to their novelty as physiological facts: they must hereafter have an important influence on definitions, methods and systems. Perhaps no hypothesis has been more generally received by scientific men than that which separates plants into sexual and asexual. Now if we review this hypothesis under the light thrown on it by Suminski's discoveries, we shall find that it rests on no more solid foundation than this: that in plants with showy flowers we have observed the sexes, while in those without we have not: we have therefore been contrasting complete with incomplete observations, rather than one ascertained phenomenon with another. The researches before us obviously tend to

abolish the distinctions of sexual and asexual, for all that we can now safely assume with regard to the sexes of mosses, fungi, lichens, or seeds, is not that they are absent, but that they are undiscovered.

K.

Notice of 'The Rhododendrons of Sikkim-Himalaya. By JOSEPH DALTON HOOKER, M.D., &c. With Drawings and Descriptions made on the spot. Edited by Sir W. J. HOOKER, K.H., &c. Second Edition. London: Reeve, Benham and Reeve. 1849.'

ALTHOUGH our journal is for the most part confined to notices of subjects connected solely with British Botany, yet we feel assured our subscribers will peruse with interest the following extract from a splendid work, the title of which we have given above. Dr. Hooker has in an almost incredibly short space of time reached the Himalaya range from Calcutta, and in the course of his explorations of some of the recesses of those stupendous mountains discovered a number of new plants. In the plates to the magnificent work before us, are depicted ten new species of *Rhododendron*, met with in what may truly be termed "the head-quarters of the genus in the Old World." This locality and the plants seen in company with the *Rhododendrons* are thus described:—

"It was on the ascent of Tonglo, a mountain on the Nepalese frontier, that I beheld the *Rhododendrons* in all their magnificence and luxuriance. At 7,000 feet, where the woods were still dense and sub-tropical, mingling with ferns, *Pothos*, peppers and figs, the ground was strewn with the large lily-like flowers of *Rhododendron Dalhousiæ*, dropping from the epiphytal plants on the enormous oaks overhead, and mixed with the egg-like flowers of a new *Magnoliaceous* tree, which fall before expanding, and diffuse a powerful aromatic odour, more strong, but far less sweet, than that of the *Rhododendron*. So conspicuous were these two blossoms, that my rude guide called out,—'Here are lilies and eggs, sir, growing out of the ground!' No bad comparison. Passing the region of tree-ferns, walnut and chestnut, yet still in that of the alder, birch, large-leaved oak (whose leaves are often eighteen inches long), we enter that of the broad-spathed *Arum* (which raises a crested head like that of the *Cobra de Capel*), the *Kadsura*, *Stauntonia*, *Convallaria*, and many *Rosaceæ*. The paths are here much steeper, carried along narrow ridges or over

broken masses of rock, which are scaled by the aid of interwoven roots of trees. On these rocks grow *Hymenophylla*, a few *Orchideæ*, *Begonia*, *Cyrtandraceæ*, *Aroideæ* of curious forms; the anomalous genus *Streptolirion* of Edgeworth, and various *Cryptogamia*; and the *Rhododendron arboreum* is first met with, its branches often loaded with pendulous mosses and lichens, especially *Usnea* and *Borrera*. Along the flat ridges, towards the top, the yew appears, with scattered trees of *Rhododendron argenteum*, succeeded by *R. Campbelliæ*. At the very summit, the majority of the wood consists of this last species, amongst which, and next in abundance, occurs the *R. barbatum*, with here and there, especially on the eastern slopes, *R. Falconeri*. Mingled with these are *Pyri*, *Pruni*, maples, barberries, and *Azaleas*, *Olea*, *Ilex*, *Limonia*, *Hydrangea*, several *Caprifoliaceæ*, *Gaultheria*, and *Andromeda*; the apple and the rose are most abundant. *Stauntonia*, with its glorious racemes of purple flowers, creeps over all; so do *Kadsura* and *Ochna*; whilst a currant, with erect racemes, grows epiphytally on *Rhododendron* and on *Pyrus*.

“The habits of the *Rhododendrons* differ considerably, and, confined as I was to one favourable spot by a deluge of rain, I had ample time to observe four of them. *R. Campbelliæ*, the only one in full flower early in May, is the most prevalent, the ropes of my tent spanning an area between three of them. Some were a mass of scarlet blossom, displaying a sylvan scene of the most gorgeous description. Mr. Nightingale’s *Rhododendron*-groves, I thought, may surpass these in form and luxuriance of foliage, or in outline of individual specimens; but for splendour of colour those of the Himalaya can only be compared with the *Butea frondosa* of the plains. Many of their trunks spread from the centre thirty or forty feet every way, and together form a hemispherical mass, often forty yards across, and from twenty to fifty feet in height! The stems and branches of these aged trees, gnarled and rugged, the bark dark-coloured, and clothed with spongy moss, often bend down and touch the ground: the foliage is, moreover, scanty, dark green, and far from graceful; so that, notwithstanding the gorgeous colouring of the blossoms, the trees, when out of flower, like the *Fuchsias* of Cape Horn, are the gloomy denizens of a most gloomy region.”—p. 13.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 609).

Lathræa Squamaria. In moist shady places, woods, copses, groves and shrubberies, at the roots of hazel and other trees, and on the trailing stems of ivy amongst decaying leaves. In various parts of the Isle of Wight, in some of its stations or in certain years, very plentiful, but not generally common in the island. Under the shrubs on the terraces at North Court, Shorwell; Rev. James Penfold!!! Plentiful, and I believe annually so, in this station. In the shrubbery at Swainston, Miss Simeon, who pointed it out to me growing in great plenty at the foot of Portugal laurels (*Prunus lusitanica*), in June, 1840. In several of the woods about Swainston, 1846. In very great abundance in Long Copse, Apes Down; Miss Dennett!! Little Standen Wood, near Newport, and not uncommon in the island; Mr. George Kirkpatrick. In 1846 I found it scattered, though rather sparingly, over Bloodstone Copse, near Ashey, at the roots of hazel, and fully in flower, March 8th (an extraordinary mild and forward season); and on the 15th of the same month I detected it in great abundance in the adjoining Eagle Head Copse, revealed by the septennial clearing of the *rice* or brushwood; some of the flowers even then beginning to go off. Exposure to the sun and wind proved fatal to this vegetable recluse, as a week or two afterwards not a plant was to be seen alive. Dr. Salter and myself have fallen in with solitary specimens in other parts of the island occasionally. Longwood (near Winton); Rev. Messrs. Garnier and Poulter in Hamp. Repos. This is the only station I can at present record for mainland Hants, where it is probably not more rare than in the Isle of Wight, but appearing at a time of year when few collectors of "wild flowers" are on the look-out, and haunting chiefly the thickest shades and innermost recesses of the woods, it escapes notice oftener than most of our native plants, having besides but little to attract attention from the mass of observers with whom beauty or fragrance are the chief claims to regard. *L. Clandestina* (*Clandestina rectiflora*, *Lam.*), which ranges to the north-west departments of France, may eventually prove to be an inhabitant of our southern and western counties. This plant was inadvertently omitted at the close of the *Orobanchaceæ* in the last portion sent to press of these Notes.

Digitalis purpurea. In dry hilly or heathy pastures, woods, hedges, and on banks, by road-sides &c.; common in many parts of the Isle of Wight on the greensand and freshwater formation; seldom, if ever, to be seen on the chalk. Frequent about Ryde in various places, but usually of small growth in this neighbourhood, which is on stiff clay. Extremely common in most of the sandy districts of the island, as about Shanklin, where, at Apse Castle, one part in particular of that picturesque spot is profusely adorned with this gorgeous plant, which there rises to a height of six and seven feet, displaying one dense spike of blossoms for two-thirds of that length or upwards.* Most abundant and luxuriant on the light soil of Bordwood Copse, and on the sand and gravel about Newport. In the Undercliff, about Cowes, Newchurch, Godshill and numberless other places, in plenty.† Var. β . Flowers white. Here and there by accident, but very rarely. About Steephill; Mr. Albert Hambrough. A specimen or two found by myself on the Wilderness, in 1842. The Foxglove is of abundant and universal distribution over the whole of Hants, excepting, as before remarked, on calcareous soils, but from which I am not quite sure that it is wholly banished. A variety with flowers of a flesh colour, streaked with white, grows sparingly in a hedge betwixt Brown Down and the Grange farm, near Alverstoke, — one specimen of which, picked on the 14th of June last, presented some very singular anomalies of structure, and in a morphological point of view was as enigmatical as it was interesting. The specimen first arrested my attention by the above deviation in colour from the ordinary state of the species, and by the peculiarity of the lobes of the corolla, which were remarkably developed and regular, the upper lobe especially, as large or larger than the lower one (not, as is commonly the case, much shorter and truncate or nearly obsolete), the mouth of the corolla scarcely at all oblique, and the entire flower looking very like that of some species of *Bignonia*. In place of the field of areolate spots which usually occupy the throat and superior part of the lower lobe of the corolla, there was in this specimen a large irregular blotch, of a blood-red colour, adding much to the strangeness and exotic aspect of the flower; but the most singular feature of the case escaped my observation, till my return home in the evening, when, looking at the specimen by

* In the highlands of Scotland I have seen the Foxglove still taller, and in Devonshire I measured a stem which was nine feet high.

† Mr. Thomson, a writer in *Loudon's Magazine*, vol. iii. (1830) p. 418, strangely asserts that "of this beautiful but noxious flower the Isle of Wight scarcely boasts a single specimen!"

candlelight, I discovered that all the expanded flowers in the spike (and they were many) bore spurs as in several genera belonging to the natural order we are now considering. There was, however, this difference between them, that whereas the calcarate plants of the order are contented, with Butler's renowned knight, to wear but one spur, and that too, like him, on the heel,* our eccentric foxglove preferred following the fashion of modern cavaliers in sporting a pair, although in a position where spurs were never worn till now. Each corolla carried one of these appendages on either side, about the middle of its length, and somewhat below the medial line of its depth or vertical section—in other words, towards, but not actually on its under surface, the situation of these processes precisely corresponding in all the flowers, but in the higher unopened buds no trace of a spur was visible, this organ appearing to be developed during their expansion, as it might be traced faintly in some of the lower, larger and more forward buds, and be seen increasing in size and distinctness as the flowers successively acquired magnitude in proportion to their distance from the termination of the spike. These spurs did not exceed a quarter of an inch in length, were straight, hollow, rather obtuse than acute, and pointed backwards, closely resembling in size and structure those of *Linaria repens*. On what morphological principles can the production of these spurs in so anomalous a part of the corolla be explained? Dr. Lindley notices the tendency in the flowers of *Scrophulariaceæ* to form pouches or spurs,† but in all cases, so far as I am aware, these hollows are definite in their situation, the corolla being either gibbous and calcarate at base beneath the tube or annular margin of insertion on the perigynous disk, or produced at its anterior extremity into foveate or vaulted concavities, forming the ringent or personate corolla. If this curious example of spurred corollas produced on a plant which does not naturally bear such, is to be regarded as an evidence of the *nixus* alluded to by Lindley, is it not remarkable that the tendency should betray itself in a manner so abnormal as in the case before us? The Foxglove is often called, here and in other parts of the south, Poppy (in Devonshire, Flopp Poppy), perhaps from the smell of the flowers, which is like that of

* "For Hudibras wore but one spur,
As wisely knowing, could he stir
To active trot one side of 's horse,
The other would not hang—of course."

HUDIBRAS, *Canto I.* (amended edition).

† 'The Vegetable Kingdom,' p. 683.

the true corn-poppy, vulgarly called here redweed. A yellow fox-glove has been reported to me (I think by Miss Griffith of Torquay, though not on her own authority) as having been found at Apse Castle, near Shanklin. I have never met with anything of the kind there, but should not be surprised to hear that the *Digitalis lutea*, if that be the plant intended, were to be discovered in England, since it abounds in the north of France, and is, I believe, common in the neighbourhood of Rouen and other places in Normandy. It is abundantly naturalized in a thicket just outside of Mr. Borrer's garden at Henfield, and our south-eastern counties of Kent, Sussex and Hants are exactly those in which there is the greatest probability of its occurrence.

‡ *Antirrhinum majus*. On walls, rocks and old buildings in and about towns, and contiguous to, or not far remote from gardens, from which it has in every instance escaped, at least in this island, and probably in all other parts of the kingdom. On several walls at Ryde, Newport, Cowes, Yarmouth &c. On rocks behind the houses at Ventnor. Frequent on walls and ruins in most parts of the county, Petersfield, Winchester &c. In its truly wild state, as I have seen it on the stony *garrigues* at Castlenau, near Montpellier, the flowers are white, with a slight tinge of sulphur-yellow or flesh-red; and of this primitive colour I have gathered them on calcareous rocks at Cat-down Quarry, near Plymouth, where the great Snapdragon looked more like an indigenous production than I have ever seen it do elsewhere in this country.

———— *Orontium*. In waste and cultivated ground, amongst corn, turnips, potatoes &c., on light sandy, gravelly or chalky (rarely on clayey) soils; not very uncommon in the Isle of Wight, being pretty generally, though mostly sparingly distributed over it. Here and there about Ryde, but rarely. Pretty frequent in turnip-fields near Gurnet farm in the autumn. Near St. Helen's. Steephill; Mr. Albert Hambrough! Fields between Lake and Sandown, and between Week farm and St. Lawrence; Mr. W. D. Snooke. Garden ground at Shanklin and Godshell, and in various other places occasionally, but usually very sporadic. About equally frequent, I presume, on mainland Hants. In sandy fields and garden ground at Short Heath and Oakhanger, near Selborne, September, 1848. Field at Clay Hall, between Haslar and Alverstoke, near Gosport. Plentiful in a turnip-field near Hasted, in the parish of Hursley (near Winchester); Mr. Wm. Whale! Heron Court; Mr. Curtis in litt. and icon in Brit. Entom. viii. t. 337. I have gathered it in this island with white flowers occasionally.

‡ *Linaria Cymbalaria*. Introduced, but now completely naturalized on old, moist or rough walls (rarely on hedgebanks) throughout the county and Isle of Wight; very frequent. On the ruins of Quarr Abbey, Binstead, but sparingly. Abundantly on old walls about Knighton Manor. Walls at Shorwell, Cowes, Ventnor, Newport &c. On stone fences at St. Lawrence, and about the Orchard (Sir Wilmoughby Gordon's), plentifully. It has established itself on a stony declivity at Bank End, Undercliff, just beyond the farm towards St. Lawrence. Profusely on old walls at Winchester. At Petersfield, Southampton, Botley &c. Wallington, near Fareham; Mr. W. L. Notcutt. Now dispersed over the greater part of central and southern Europe, and profusely bedecking the venerable walls of our ancient towns in the south of England with its mantling tresses of purple, and deep shining green, but apparently rare till within a comparatively recent period. Mr. Borrer I believe remembers when it was almost unknown in Sussex, and was himself instrumental in aiding its dissemination in that county; and the writer of these remarks has several times heard it related as a family tradition, that a near relative of his own, long since deceased, who was much devoted to her garden and greenhouse, received a pot of *Cymbalaria*, as it was then called, from the late Sir Joseph Banks as a welcome botanical present. From Sir James Smith's account of this plant in his 'English Flora' and in 'English Botany,' one would be led to infer that our public botanic gardens were the original *puncta salientia* from whence it had spread itself over the land, and few persons seem aware of its having been known in England long prior to the existence of these institutions amongst us. It is distinctly named and described both by Gerarde and Parkinson in 1636 and 1640, who give very tolerable figures of it, the former especially (Ger. em. p. 529, fig. 6), who says it "growes wilde upon walls in Italy, but in gardens with us." Parkinson's woodcut ('Theatrum Botanicum,' p. 682, — *Cymbalaria hederacea*) is much inferior to Gerarde's, but his account is more circumstantial, for he tells us "It groweth naturally in divers places of our land, although formerly it hath not beene knowne to bee but in gardens, as about Hatfield in Hartfordshire, both in their gardens and other places that are shadie upon the ground, for there it will alwayes best like to grow, as also upon thatched houses in the north parts, as I am given to understand, and most abundantly in Lancashire and in my garden, where it runneth up from the ground on the wall a pretty height." Smith, who uniformly cites the figures of both these authors, seems to have overlooked them in this instance, and it

is remarkable that Ray in his great work the 'Historia Plantarum' (vol. i. p. 759), though referring to the two old herbalists, is silent on the subject of the *Cymbalaria* as native to or naturalized in Britain, but mentions it as abounding on damp walls and rocks in Italy, and on the walls of Bâle in Switzerland.* In the 'Synopsis,' however, his editor, Dillenius, gives it on the faith of that accurate observer Dr. Richardson, as found everywhere in quarries (in fodinis) at Darford, in Yorkshire (Syn. p. 282). From these facts it is clear that *Linaria Cymbalaria* has been known in England from an indefinitely remote period, but continued of comparatively rare occurrence till the general diffusion amongst all ranks for a taste for gardening, which marked the latter part of the last and the whole of the present century. I have never seen this species in Italy, or elsewhere in the south of Europe, but on walls and buildings as with us, and in Holland on the brick-work along the canal banks and bridges, so that it seems as much at home here as in any country on the continent, and would probably never wholly disappear from our soil, should our cities and towns share the fate of those of antiquity and crumble into ruins. From its creeping far and wide, by root and seed, it has gained in this island the name of Roving Jenny or Roving Sailor, and in America is known, I find, partially at least, as Kenilworth Ivy, perhaps from its

* Many plants locally abundant in our times, and most likely in theirs, escaped the notice of Ray and his contemporaries, but which omissions do not, I think, go far to prove such species to have been since imported and naturalized, because the same thing is continually happening in these days of Argus-eyed research, that plants are suddenly discovered in places where they must have pre-existed perhaps for centuries, as *Erica ciliaris*, whilst others have been lost sight of and again detected in their original or new localities, as *Isnardia palustris*, *Euphorbia pilosa*, *Bupleurum falcatum*, *Cyclamen hederæfolium*, *Bunium Bulbocastanum* and many more. Our surprise at the large number of plants added to our flora during the last 60 or 80 years will diminish when we reflect under what disadvantages the earlier botanists of this country laboured in their endeavours to explore its vegetable productions, from the tediousness, expence and inconveniences of travelling, the very limited diffusion amongst the people of scientific tastes or acquirements, and the consequent want of co-operation felt by the few exceptions to the general ignorance and apathy of the age. Add to these, the obstacles to epistolary correspondence from the slowness and uncertainty of the post, the high rates of postage, and the want of a clear, definite, universal language and nomenclature for conveying scientific truths and discoveries between the initiated. The perusal of the works of the old herbalists who lived in the sixteenth and seventeenth centuries yet show incontestably their acquaintance with many a plant, shrouded by uncouth names and barbarous descriptive phraseology, which it is supposed the reformed nomenclature of Linnæus, good roads, railways and the penny postage have each in their time and turn enabled us moderns to discover.

prevalence on the walls of that castle which the muse of Scott has rendered familiar to all the world.

Linaria Elatine. In waste and cultivated ground, gardens, tillage fields, on hedge and ditch-banks, sometimes in wet boggy places and woods; common almost everywhere throughout the county and Isle of Wight. Plentiful on the eocene or freshwater formation, as well as on the chalk; less frequent perhaps on the greensand than on the two preceding deposits. Our corn-stubbles and fallows are often covered with this and the next species at the close of summer. Besides many other points of difference betwixt the present and the following species, may be mentioned that the peduncles of *L. Elatine* are much more slender than in *L. spuria*, not hairy as in that, excepting slightly so near both ends, and when in flower diverge from the stem nearly at a right angle, being for the most part finally reflexed as the capsules approach maturity. The peloria condition with regular three, four or five-spurred flowers I have found both in this and *L. spuria* in chalky fields at Twyford, near Winton.

——— *spuria.* In precisely similar stations with the last over the county and island, but of rather less frequent occurrence in general, being more, though not exclusively attached to calcareous soils, and seldom straying beyond the limits of cultivation. Frequent about Ryde, Sandown &c. Very common in Undercliff. Often as abundant as the last in stubble-fields in autumn, either taking its place or growing in company with it. Flower-stalks much stouter than in *L. Elatine*, hairy all over like the stem, and spreading from the latter at a moderate angle only, never, I think, reflexed in seed. I have often wondered that these two species of *Linaria* have not been brought into cultivation to ornament windows and halls, as they equal several of our greenhouse creepers in elegance, and the flowers, though not showy, are pleasing from the singularity of form and combination of colours (yellow and rich purple-brown) they display. The foliage too is not devoid of elegance, and the innumerable slender stems, which in the wild state not unfrequently attain to three or four feet in length, hang gracefully over the vase that contains them. As the more delicate plant, *L. Elatine* would be preferred by many, whilst *L. spuria* would come recommended to others by its greater robustness of growth, more conspicuous flowers, and larger size of its round velvety leaves. For further remarks on these two species and their geographical distribution see 'Phytologist' i. p. 168. It is worthy of notice here, that commonly as these plants are found growing together, and closely as they are allied in habit and character, I have never

observed any tendency in them to produce hybrids, although, as we shall see presently, mules occur between species of this genus less nearly connected botanically, and brought into less intimate contact with one another.

Linaria minor. In dry gravelly, sandy or chalky corn-fields and other tillage lands, in waste and garden ground, chalkpits, on old walls, cliffs and rubbish here and there, not unfrequent, and often abundantly. By no means rare in the Isle of Wight, though it cannot be deemed a common species here or on the mainland of Hants. About Ryde occasionally, on the Dover &c. I find it most abundantly (and I have reason to believe it to be so every year) in fields below Gatehouse farm, and in great quantity in a field a little south of Beanacre, in the same vicinity. On débris of the chalk-marl cliffs in Whitecliff Bay. Chalkpits near Newport. Fields about Pallance and elsewhere near West Cowes. In the Undercliff, also near Calbourne, Shalfleet, Thorness Bay, and various other places in the island, generally dispersed, sporadically or socially, over its entire area. Of equal frequency on the mainland of the county. Bordean Hill, West Meon, Alverstoke. Plentiful amongst turnips on Portsdown Hill, near and below the Nelson memorial, Oct. 1848. Bedenham &c.; Mr. W. L. Notcutt. Winton, Pink's Hill, Warnford; Rev. E. M. Sladen. Andover; Mr. Wm. Whale. Crux, Easton, Aug. 1849.

—— *repens.* In hedges, on banks and dry barren ground. Quite rare in the Isle of Wight, where it is confined to a few localities in West Medina. In several stations about West Cowes rather plentifully, more particularly in hedges about Broadfield farm, in various places pretty abundantly. Debborne Turnpike; Miss G. E. Kilderbee. Near Yarmouth; Rev. W. T. Bree in litt. (very sparingly in that neighbourhood !!!) “Lane between Thorley Street and Bouldner, and I believe elsewhere in that parish;” Mrs. Penfold !!! A few plants by the road-side betwixt Bouldner and Luckets; W. A. B. About a quarter of a mile beyond Stapler's Heath going from Newport to Ryde, along the side of the road, sparingly,—the only station in East Medina that I know of for this plant, which seems wholly restricted to the north-western side of the island, near the coast line. Much more plentiful in mainland Hants, but principally towards the sea. Abundant on the wide flat shores of Stoke's Bay in various parts. Everywhere plentiful in the hedges and borders of the corn-fields betwixt Gosport and Alverstoke, along the road from Haslar Hospital to Clayhall and Anglesey, and beyond this latter place westward towards Brown Down. On Southampton Common abundantly; Mr.

Wm. Pamplin in New Bot. Guide. Marchwood, Mr. Borrer, and on Shirley Common, both near Southton. Hursley, near Winton; Miss L. Legge! I understand it grows also at Beaulieu in West Hants, and doubtless in other parts of the county. An extremely variable plant in the size and colour of its flowers and their markings, as well as in the length and degree of obtuseness of the spur. The blue or purple striæ vary much in number and intensity, being sometimes very faint and almost obsolete, and wholly or partially wanting on the lower lip; at other times the entire corolla is strongly pencilled with broad deep purple or azure lines, so as to appear altogether of that colour. A variety with the flowers pure white and destitute of striæ I find in a field-hedge at Clayhall, near Gosport, Sept. 1848, and July, 1849, but very sparingly. This form has, I think, been noticed at Coniston in Westmoreland, by Mr. Borrer. Another and more remarkable state of the plant is a hybrid production between it and *L. vulgaris*, erroneously, as I feel assured, referred to *L. italica* of Treviranus, and *L. genistifolia* of De Candolle, by Babington (Man. 2nd edit. p. 232), and previously to *L. Bauhinii* of Gaudin, in the 'London Journal of Botany' (vol. i. p. 79), by Mr. H. C. Watson, who, I believe, is now sensible of his error in so doing.* I first noticed the plant some few years back, growing in extremely small quantity, in the hedge by the road-side within a mile of West Cowes, on the way to Newport, and again in a lane close by the same station (called, I believe, Love Lane) leading from the said high-road towards the windmill: in both places *L. repens* and *vulgaris* were growing in the vicinity of the mule plant. I again fell in with this hybrid September 1, 1848, in some degree of comparative plenty, along the hedge-banks by the road from Gosport to Clayhall and Alverstoke, a few hundred yards from Haslar Hospital, on the right-hand side of the road coming from Gosport. Here, as at Cowes, the two parent species will be found flourishing near each other, and in quantity vastly exceeding their spurious offspring. What is evidently the same thing has been found at Shirley, near Southampton, by Mr. Watson, in the county of Cork, and near Penryn, Cornwall,—places all three well known to produce *L. repens*, and it may fairly be presumed *L. vulgaris* also. The very aspect and characters of the plant,

* In reply to a communication in which I expressed my conviction of this being a hybrid, Mr. Watson writes:—"Your hybrid *Linaria* is in all likelihood the same as my *L. Bauhinii*; and if hybrid, we should expect some differences, as in fact do exist in the Cornish, Hants, Cork and Swiss specimens."

without this strongly corroborative fact, stamp it unequivocally for a mule production, in which the features, sometimes of the one parent, sometimes of the other, predominate. The *L. stricta* of Hornemann I take to be our hybrid in one of its smaller-flowered phases, such as I occasionally meet with at Gosport, and in which *L. repens* is dominant over the commoner progenitor. This is referred by Koch* and Bentham† to *L. repens* as a variety of that plant, but the concise description of the former author, given below, coincides better with our English mule than the figure of Reichenbach, which is more highly coloured in the yellow portion of the flower, and less distinctly striated in the upper lip than any specimens from this quarter at least, besides that the lobes of both lips are in that figure represented as acute, whilst in our plant they are remarkably rounded and obtuse as in the type.

A degree of fragrance is ascribed to the flowers of *L. repens*, which has been noticed by the earlier botanists as well as by those of our own day, but beyond a certain herbaceous odour I could never perceive any sweetness in the blossoms, even with a large bundle of the plant before me for drawing up a description from, although a single specimen has, from another party ignorant of the fact, elicited expressions of pleasure and surprise at the grateful smell diffused by it.

N.B.—*L. purpurea* is to be seen occasionally on wall-tops and waste ground, escaped from gardens, in several places of the island. I have found it in such situations at Bonchurch and Yarmouth, and on the sandy spit at Norton, Freshwater, but too sparingly to be admitted with propriety to denizenship in our Flora. Being a native of central and southern Italy it is not likely to gain a permanent footing in this country, but *L. supina*, lately added to the British Flora, may not unreasonably be looked for along the southern coast, as it is truly indigenous on the opposite shores of France (I think at Cherbourg), and abounds about Rouen and elsewhere in Normandy. The Cornish stations lately discovered are in all likelihood really natural habitats.

Linaria vulgaris. Everywhere common in hedges, borders of fields, waste ground and by road-sides, particularly in light sandy

* Röhling's 'Deutschlands Flora,' iv. s. 402. Eine andere Abart (*L. striatæ*) hat bleichgelbliche Blüten mit einer violett gestreiften Oberlippe. Diese ist die oben angeführte *Linaria stricta*, Hornem. Haf. 2, p. 577 Reichenb. Ic. v. p. 14 (tab. 423). See also Gadron, 'Flore de Lorraine,' iii. p. 146, *L. striata* β. *grandiflora*.

† In De Cand. Prodr. x. Scrophular. p. 278, Bentham distinctly says that the *L. italica* of England is a hybrid between *L. vulgaris* and *L. stricta* (probably a misprint for *striata*, that is *L. repens*), which has always been my own opinion.

soils. Var. β . *Peloria*. Very rare in the Isle of Wight, nor have I any notice of its occurrence on the mainland of Hants. A single specimen in the marshy meadows betwixt Newchurch and Alverston, facing a cottage called Burnt House, Oct. 4, 1842. Some of the flowers with five, others with six spurs. I found some plants between Morton House and Alverston bearing a few flowers with cleft spurs; in one flower there were two spurs each so divided, but no multiplication of any other part of the corolla. Var. γ . Corolla milk-white, palate deep orange. In a field-hedge betwixt Werror farm and the high-road from Newport to Cowes, Aug. 9, 1839. Betwixt Cockleton and Gurnet Bay. A very handsome variety from the shining, milky-whiteness of the corolla and the deep orange of the palate. The spur is a little longer and more attenuated than in the ordinary state of the plant. Mr. Borrer has seen the same variety in Sussex, but the brilliant white cannot be prevented from changing to a yellow in the process of drying. Var. δ . Palate very pale-yellow, almost white. Not uncommon in the Isle of Wight generally, and perhaps hardly deserving notice as a form. Royal Heath &c. Var. ϵ . *latifolia*. Leaves much broader, flowers larger, on glabrous pedicels. Under the wooded shore a little west of Ryde, towards Binstead, Aug. 1845 (an *L. speciosa*, *Ten.*). A very remarkable variety, if not a distinct species, though I can find no good character to separate it from *L. vulgaris* excepting proportion of parts. Leaves much broader than in that, narrowly lanceolate, the floral ones often quite lanceolate, more rigid and spreading, and very glaucous. Flowers nearly twice as large as in *L. vulgaris*, approaching to those of *L. dalmatica* in size, and like them of a citron rather than sulphur-yellow, very handsome, forming a few-flowered, lax or distant raceme, not crowded and imbricated as in *L. vulgaris*, on longer, less erect, glabrous pedicels, the spur longer, straighter, more attenuated and very acute, directed perpendicularly downwards. Capsules not above half the size of those of *L. vulgaris*, mostly shorter than the calyx, sometimes as long or a very little longer.* Seeds smaller and very similar to those of *L. vulgaris*, but the tubercles in the centre larger, more prominent and irregular. The only species to which I can refer our plant is the *L. speciosa* of Tenore, since it corresponds pretty exactly with the short description of this latter by Bertoloni (*Fl. Ital.* vi. p. 370), for Tenore's own figure I have not the means of consulting. The plant is

* The capsules in this genus are extremely liable to vary in size and configuration in the same species, as we see them do in *Euphrasia*.

limited to a spot of a few yards in extent, growing amongst brambles, ragweed, &c., and though in moderate quantity, may possibly not be truly indigenous. But if Mr. Bentham is right in referring, as he does without scruple, Tenore's plant to *L. vulgaris* as a variety of the latter,* I see no reason why it may not be equally wild with us as in Italy. Mr. Watson justly remarks to me that *L. vulgaris* varies greatly in the breadth of the leaves and the size of the flowers, though he had not met with these parts so large and broad as in the specimen I sent him last year. He now has it under cultivation from seeds I transmitted to him, whilst I failed in my attempts to raise plants in the garden, both from seed and roots. Our plant agrees in many particulars with Bertoloni's description of *L. speciosa*, but not in all. The pedicels in my specimens are not longer than the bracts, nor the spur shorter than the corolla; the former are here fully equalling or surpassing the flower-stalks in length, and the slightly recurved spurs are mostly about as long as the fully expanded corolla.

Scrophularia nodosa. In damp, shady or sometimes dry places, woods, thickets, hedges, moist pastures, banks of streams, &c.; very frequent over the whole county and Isle of Wight. The *S. marilandica* of Linnæus, common in the United States, does not differ in any respect from our European *nodosa*, and is now very properly conjoined with the latter by most botanists.

————— *aquatica*. Still more common than the preceding species, and to be found abundantly along almost every ditch, pond and stream, and in every wet hedge, thicket and marshy spot, here and on the mainland. Obs. *S. Ehrharti* will in all probability turn up within our floral limits, since it has been found in the neighbouring county of Sussex and other parts of the south, although apparently more frequent in the north of England, replacing in some degree our *S. aquatica*, which is there uncommon. This very distinct species, in our time first recognized as British by Mr. C. A. Stevens, and most faithfully delineated in the 'Supplement to English Botany,' tab. 2875, is, I think, unmistakeably pointed out in Ray's 'Synopsis' (Dillenian edition, p. 283) as follows:—" *Scrophularia major*, caulibus, foliis et floribus viridibus. D. Bobart. Figwort with green leaves and flowers. Found near Cumner. Common Figwort is called Brownwort from its remarkable brown colour. This hath nothing of Brownness in it." This account, short as it is, well describes *S. Ehrharti*, even then considered by Ray as a distinct species (his No. 4).

* De Cand. Prod. Pars. x. Scrophulariaceæ, auctore G. Bentham, p. 273.

S. vernalis will probably prove to be a native of Hampshire, as it occurs in Surrey, and according to an anonymous catalogue flora of the neighbourhood of Newbury* in my possession, is common about Bucklebury and Marlestone in Berkshire. *Limosella aquatica* though not hitherto detected, so far as I am aware, in Hants, cannot I conceive be really a stranger to our county, awaiting only the keen and practised eye of an experienced botanist to draw it from the obscurity of its native mud.

Melampyrum cristatum. In dry woods, thickets and copses, especially such as have been recently cut, and on chalk, sometimes amongst corn, rare, and, as it would seem, uncertain or periodical in its appearance. Not found in the Isle of Wight. By Netley Abbey; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Discovered about twenty years ago most abundantly in woods between Clanfield and East Meon, by Mr. W. Pamplin. In consequence of an unsuccessful search for this beautiful and conspicuous plant by myself in 1847, Mr. Pamplin most kindly met me last summer at Petersfield, where we explored the woods in question with no better result, the weather, too, being most unfavourable for a sylvan ramble. Since then, an observation in the excellent 'Flora of Hertfordshire' by Messrs. Webb and Coleman, has suggested to us the probable cause of our failure, in the fact that this, like many other annuals, may and does vanish for many successive seasons, till circumstances favourable to the germination of the dormant seeds call it again into existence. Mr. Pamplin's botanical accuracy is unimpeached, and having been lately "smitten friendly" by Mr. Lees for a want of faith in the visual accuracy of others, I gladly embrace the opportunity now afforded me of avowing my hearty concurrence in the justice of his remarks, supported, as they are, by the very curious instances he

* 'A Catalogue of Plants found in the neighbourhood of Newbury,' 1839, 8vo.,—a pamphlet of thirty-one pages, which includes several Hampshire stations for plants therein mentioned, as Newbury, the centre of the district examined, is only about two miles from the border of this county. The list on the whole appears worthy of credit, although such announcements as that of *Polycarpon tetraphyllum* "in waste places at Hampstead Norris" and two other stations; of *Illecebrum verticillatum* as "common in waste places and by road-sides at Blewbury, and throughout the Vale;" of *Lepidium latifolium* in "peat-pits about Newbury;" of *Cnicus heterophyllus* (*C. pratensis* no doubt) on Woodhay and Cold Ash commons, and of *Habenaria alba* on Lid's bank, Blewbury," &c., coming barely within the range of possibility, but very wide of the bounds of probability, do not tend to strengthen our confidence in the correctness of the remaining stations, most of which I see no great reason to doubt of on the score of unlikelihood.

has brought forward in his paper (Phytol. for May last) of vegetable periodicity.

‡? *Melampyrum arvense*. Parasitical (?) Amongst corn, and on the grassy borders of corn-fields and banks contiguous to them in the Isle of Wight, but very local, being entirely confined to its extreme south and south-east side, and generally thought to have been introduced with seed-wheat from other parts of England or from the continent. Most profusely in corn-fields (chiefly amongst wheat) above the Undercliff, from Bonchurch westward nearly to Niton, extending backwards or inland to Whitwell, but scarcely, I think, higher up the valley than that village. The district principally infested with this gaudy but most pernicious weed, is a nearly equilateral triangle, of which Whitwell forms the apex, and Niton and St. Lawrence the two basal angles; for though it has encroached on the land to the eastward nearly as far as Bonchurch, the quantity there is limited, and the injury it occasions comparatively trifling. I find it also in the Pelham Woods, growing amongst grass and other herbage, and on the rocks and slopes that overhang them, but only in that part of these beautiful woods immediately underneath the beetling crags that form the great mural boundary of the Undercliff, and whither I suppose the seeds to have been conveyed by the winds or by birds from the corn-fields just above and behind them. Yet it is remarkable that the poverty-weed, as it is here called, never descends into and infests the corn-fields that occupy so large a part of the valley or terrace known as the Undercliff, to which its introduction would seem to be inevitable, as one can hardly conceive the belt of wood at the base of the cliff to be any barrier to its encroachments, but keeps entirely to the high grounds, and I believe never occurs off the chalk or chalk-marl, unless, as just mentioned, its appearance on the ledges of the gale or firestone be held an exception. There seems good reason to put faith in the tradition current here, that the purple cow-wheat was introduced to the island at no very distant period, although I cannot find any person who pretends to remember when it was even scarce in their neighbourhood. It was first noticed, I am told, on the Dean and Ash farms by Whitwell, where the wheat and barley have ever since been sadly overrun with it, and the crops greatly deteriorated thereby. In 1838 I found it plentifully in corn-fields at the west end of Ventnor, and creeping on at the back of that village (since risen to the dignity of a town) very nearly to Bonchurch. It behoves the farmers of West Medina (the greater corn-growing hundred of the two) to be on their guard against its introduction into their chalky soils,

already too prolific in cereal nuisances of various kinds. From Mr. Borrer I learn that this gaudy pest is reported to have been brought in with corn from Jersey, which is very improbable, seeing that the purple cow-wheat is not mentioned as a native of that island in Babington's 'Primitiæ Floræ Sarnicæ,' nor have I ever remarked it there myself. From Mr. George Kirkpatrick, of Newport, I understand it is rumoured to have been conveyed hither in seed-wheat from Norfolk, whilst according to others it was imported from Spain. As this species abounds in a few of the middle and eastern parts of England, and especially in Norfolk, I am most inclined to believe we are indebted to that county for the unwelcome present, nor, except in this island, am I acquainted with any stations for *Melampyrum arvense* south and west of London. The name of poverty-weed, inapplicable as it may appear to so showy a plant, bears reference, I presume, to an opinion that it exhausts or impoverishes the soil, or indirectly, perhaps, alluding to a similar effect on the pocket of the farmer, the produce of whose fields is rendered less marketable from the blue colour imparted to the wheat flour contaminated by an admixture with the seeds, from which it is scarcely possible to free the grain by winnowing, as the specific gravity of both is pretty nearly the same. Withering remarks that although the seeds of *M. arvense* give a bitterness and discoloration to the bread, they do not make it unwholesome, but the contrary opinion prevails here amongst our country people, who attribute decidedly injurious effects to bread so adulterated, which a poor woman described to me as "tasting sharp in the mouth." The flavour of the fresh seeds I find to be hot, bitter and disagreeable. A respectable middle-aged man, named Rabbett, a shoemaker, who resided for many years at Whitwell, and now keeps the new toll-gate at Shanklin, tells me that when employed with others harvesting on Week farm, they used to pull up the poverty-weed with the greatest care, and carry it off the fields in bags and burn it, picking up the seeds from the ground wherever they were found lying. Of late years he thinks the bread from the Dean and Week farms is not so dark coloured and "hot" as it used to be, and that the plant is less plentiful than formerly. He remarks that the *Melampyrum* often makes its appearance in clover and grass, and comes up plentifully when the land is left in lay, at which time it might be eradicated without injury to any crop. He gives the same account as others of its introduction to the island with seed-wheat, but does not know from whence this "droll" weed is supposed to have come to us, which was before his recollection. I am quite persuaded that negligent farming

is alone to blame for the predominance of this troublesome plant at the back of the island, and that like the far less injurious *Orobanche* minor, it might be kept under, if not wholly eradicated with but little labour or expence. At present, the poverty-weed is permitted to grow up and ripen its seeds with the grain, which they thus contaminate; much is left to flower and seed on the stubbles after harvest, and is ploughed in to lie dormant till the land is again sown with wheat, and thus a perpetuation of the evil is ensured. The *Melampyrum* is up and coming into flower before the wheat is in ear, and with a little practice might easily be distinguished in a yet earlier state, when it could be weeded out by hand with facility; women or children being engaged for the task, the cost would be moderate, and not worth considering as a set off against the benefit obtained.* A specimen of this plant with the flowers white was found by Miss Hadfield near Ventnor! Many plants of this natural order (*Scrophulariaceæ*), as *Melampyrum*, *Pedicularis*, *Bartsia*, *Rhinanthus* and *Gerardia*, that turn black in drying, can hardly be made to grow by artificial culture, though from the beauty of most of these genera, it would be desirable to have them common in gardens. Decaisne I think it is, who asserts that these plants, like the *Orobanchaceæ*, are parasitic on the roots of other vegetables, and explains the difficulty experienced in their cultivation by a knowledge of this curious fact. I have several times sown the seeds of *M. arvense*, but though they come up freely at first, few of the seedlings attain to a flowering state, and such as do blossom look weakly and die off without maturing seed in their turn. It has once or twice appeared spontaneously in the garden at St. John's, near Ryde, amongst the flower borders, but has uniformly disappeared in a year or two in spite of every care taken to leave it undisturbed. Of its parasitism I have hitherto been unable to assure myself, and there is nothing in the structure of its roots different from other annuals to favour Decaisne's assertion. When the seeds of *M. arvense* begin to germinate, the radicle elongating, elevates the yet entire seed considerably above the surface of the soil,

* I understand from my friend Capt. Love, R.N., of Yarmouth, I. W., who had the information from Mr. Jolliffe of the Dean farm, that sheep are partial to the purple cow-wheat, and as the seeds are not all matured before the crop is off the ground, by folding the animals on the stubbles as soon as the corn is carried, the land might in some degree be freed from this pernicious annual. The expedient, it is obvious, must be very partial in its operation, whilst careful weeding would ultimately effect a complete cure of the evil.

after which the testa bursts by the eruption of the plumule, and the young plant thus appears as if vegetating in the air.

Melampyrum pratense. In dry woods, groves and thickets, abundantly over the whole of the county and Isle of Wight. Var. β . latifolium. Leaves (the uppermost especially) more or less inclined to ovate or ovate-lanceolate. Probably not unfrequent. Plentifully in New Copse, near Wootton Bridge, May 24th, 1846. Picked at Apse Castle, near Shanklin, in May, 1843, but only a solitary plant. Woods at Clanfield near Petersfield, common, July, 1848, and plentifully in a wood near Appleshaw, June 26th, 1848, but exhibiting here, as in most of the above-mentioned places, all gradations between this and the ordinary narrow-leaved form of the species. Near Boarhunt, July, 1848. In these specimens the uppermost or floral leaves are very deeply pinnatisected or pectinato-dentate below, and cordate, ovate or rounded at base. I presume our plant to be the var. γ . latifolium of the Manual, and identical with that found by Mr. Borrer in woods on the Wye. If so, it is apparently a frequent form in Hants, and I have gathered the same plentifully on Ross Island, Killarney, in 1842. It must, however, be looked upon as a casual deviation only from the normal state, and not as a well-defined and permanent race or variety. In Sweden this species is found in meadows, not as with us in woods, and hence the epithet of *pratensis* given it by Linnæus was not so inappropriate as it appears to more southern botanists.

Pedicularis palustris. In spongy, turfy, or peaty bogs, wet meadows and thickets, also in ditches, pools, and field-drains. In many parts of the Isle of Wight, but not very general. In Sandown Level, and abundant in the marsh at Easton Freshwater Gate. In several parts of the valley of the Medina south of Newport, as on Rookley Moors and deep bogs about the Wilderness, &c. Near Calbourn, Carisbrook, Shorwell, and elsewhere, not unfrequent. On Apse Heath I have found it with white flowers. Common, I believe, in mainland Hants. Wet meadows below Winton. Boggy parts of Titchfield Common in plenty. Bog betwixt Lyminster and Brockenhurst. Warnford; Rev. E. M. Sladen.

Pedicularis sylvatica. In exactly similar places with the last, but also on moist heaths, damp pastures and moors too dry for *P. palustris*; extremely common throughout the Isle of Wight, and I believe the county at large. With white or flesh-coloured flowers I find it under the cliffs betwixt Sandown and Shanklin, 1842. About Bridge by Godshill, Rookley, &c., not unfrequent, May, 1845. These are

the only two species, I believe, of this eminently alpine genus that inhabit the low grounds at the sea level throughout Europe.

Rhinanthus Crista-galli. In usually damp, but often in the driest meadows and pastures; likewise on boggy ground and wet heaths and commons; most universal and abundant. Plentiful, even on the driest and warmest chalk hills, but of small size, and with the stem mostly quite simple. Very large, bushy and much branched from the base on peat bogs on Colwell Heath, Freshwater, and which I supposed might be *R. major*, but it does not accord with that species. Another form, with very slender, perfectly simple stems, and smaller flowers than ordinary, I found plentifully last summer in woods near Clanfield, whilst searching for *Melampyrum cristatum*. Is this the *R. minor* of authors? Much confusion attends the discrimination of the different species of *Rhinanthus*, that have been split off I suspect very unnaturally from one most variable plant, the common yellow rattle of our fields and pastures. In this island the yellow rattle is called fiddle-cases, without doubt from the shape of the inflated calyx like the case of a violin.

Eufragia (Bartsia) viscosa. In damp places, meadows, pastures, and by road-sides, as yet only in the south-western part of the country (in and near the New Forest and towards the coast); very rare? At Hythe, near Southampton; Dr. G. A. Martin! Near Christchurch; Mr. J. Hussey in litt. Roadside betwixt Lymington and Exbury; Mr. J. S. Mill. Never found by me in the Isle of Wight, but it seems to have occurred here in times past, from the following passage in Ray's Synopsis (Dillenian edition) Indic. Plant. Dub. at the end of vol. ii.: "*Cratæogonum cubitalis altitudinis, flore luteo.*" In the Isle of Wight; Mr. Cole: and in the King's meadows at Godstone, in Surrey. (Forte *Euphrasia major lutea latifolia palustris* R. Syn. (*Eufragia viscosa*). I think there can be little doubt of our present species being intended by the above cumbrous phrase, as Dillenius also supposes, though it is possible the tall bog form of *Rhinanthus Crista-galli*, lately alluded to, might have been in the writer's mind, and the Godstone station seems an unlikely one for a plant so western and maritime as the *Eufragia viscosa*. No part of the county is theoretically more likely to produce this species than the Isle of Wight, and we may confidently hope to fall in with it ere long, most probably on the north-western side of the island, between Cowes and Yarmouth; it must, nevertheless, if found at all, be very rare here, since it has eluded my observation for these twelve years past. Yet the same thing has happened with *Habenaria viridis*, an

unquestionable Isle-of-Wight plant, of which I have more than once received Vectian examples, yet could never light upon it myself; indeed, it has never greeted my eyes in any part of England, although by no means a very uncommon *Orchis* in most quarters of the kingdom. *Eufragia viscosa* abounds in the adjoining county of Dorset, about Poole, the flora of which has a decidedly western character, and to the eastward it has been found in Sussex, at Bexhill, probably its extreme limit in that direction. In Ireland I found it on deep spongy bogs in the counties of Cork and Kerry. Grisebach's name of *Eufragia* is objectionable, as too close in sound to *Euphrasia*.

Euphrasia officinalis. In meadows, pastures, woods, and on dry heaths, &c., abundant everywhere.

———— *Odontites*. Universally plentiful in pastures, woods, waste places, borders of fields, by way sides, amongst corn, &c., whether dry or moist. Var. β . Flowers white. Near Ryde; Mr. Wm. Wilson Saunders. A specimen with the flowers remarkably distant was gathered some years back by Captain Beckford, R.N., I believe near Cowes!

N. B. — *Sibthorpia europæa* should be looked out for in damp, shady, boggy places along the margins of rivulets, since, though quite a western plant, its range extends eastward into Sussex, where I gathered fine specimens some years ago on the only known station for it in that county, by a boggy stream on Waldron Down, near Uckfield.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,

August 6, 1849.

(To be continued.)

Who knows Viola canina? By HEWETT C. WATSON, Esq.

WHO KNOWS VIOLA CANINA? To this question, three years ago, every English botanist might have answered, unhesitatingly, "EVERYBODY;" meaning, thereby, himself and all other the botanophilists of Britain. And yet, gentle readers of the 'Phytologist,' who are collectors of English specimens, forty-nine in fifty of you had then in your herbaria, and likely enough is it that nine in ten of you still have there, a plant so labelled which is not thus designated by the leading continental botanists, and which (I much fear) is destined shortly to lose that familiar pame in England.

Why so? Because we have in this country a small group of botanists, industrious and talented, and united in their efforts, who have so thoroughly habituated themselves to study English plants through foreign books and foreign labels, that they would now prefer adopting a continental error, rather than they would adhere to an English accuracy which is incompatible with the error. "*Viola canina*" thus becomes a dog with a bad name, and will be forced to forego that name which it has held for two centuries and upwards, with the universal consent and acceptance of British botanists. The fiat has gone forth, that the Dog's Violet must cease to be "*canina*," and is to become "*sylvatica*."

Whither must the discarded name go? If thus taken from the species to which it originally and legitimately belonged, it were better suppressed altogether, as the most likely course to avoid confusion and cross-naming in future. Instead of this safer course, it is proposed to restrict the name of "*canina*" to a different species, hitherto unfamiliar to British botanists; overlooked by many of them, confused with the Dog's Violet by several, and otherwise labelled by the rest. The *Viola flavicornis* of Smith (or, at any rate, the species to which that dwarf form belongs) is henceforth to become our *Viola canina*, as it long has been the *V. canina* (more or less confused with the species originally so named) of many continental botanists.

Every collector of botanical specimens in England is acquainted with the scentless violet which grows so copiously on hedge-banks, in and about woods, on the borders of fields and commons; producing cordate leaves, usually smaller than those of the sweet violet, and flowers of a lighter or more lilac tint. It was to this common and familiar species that our early botanical writers applied the name of *canina*; and in this application of the name they have been followed by subsequent authors, up to the date of the *second* edition of Babington's 'Manual of British Botany;' although, in this latter work, the change of name from "*canina*" to "*sylvatica*" has been partially made; that is to say, the larger forms of the former have been separated, and described under the latter name, by the author of the Manual. He has, however, left the smaller forms of the old *V. canina* still under that name, conglomerated with some forms of a different species, the *V. flavicornis* of Smith.

It appears to me a fact beyond question, that the *Viola "canina sylvestris"* of Gerarde (Em.) was a name intended to distinguish the scentless "wild or Dog's Violet" from the sweet violet; the name being expressly applied to a common sylvan species which was found

“ad sepes et in dumetis passim.” (See Raii Syn, edition 2, p. 214, anno 1696). Afterwards, in the third edition of the same work, 1724, Dillenius mentioned and figured another plant, as “a variety of *Viola canina*, if not a different species, observed by Du Bois, and much smaller than the common plant in all its parts.” The small variety, or different species, was a Surrey violet, stated to have been found in pastures near Mitcham. This, the only locality recorded by Dillenius, is not without some value as evidence in the question of specific names.

We may pass over the intermediate authors on British Botany, by a long leap to the ‘English Flora’ of Smith, published just one hundred years after Dillenius had published the third edition of Ray. Smith’s work became, as is well known, a standard authority for subsequent writers to follow and copy from, for the last quarter of a century. Here we find Gerarde’s identical *Viola canina sylvestris* still designated *Viola canina* by Smith, under the belief that Linnæus had likewise so designated it; while the Dillenian small variety or different species is described under the name of *Viola flavicornis*. Besides these two, Smith still kept up his own *V. lactea*, as a third species, distinct from both the others.

Since the death of Smith, very few of the writers on British botany seem to have clearly understood and distinguished his three species, individual forms or varieties of one species having often been referred to another of them. Dwarf forms of *V. canina* (Smith) have thus been referred to *V. flavicornis*; and examples of the latter, in its turn, have been supposed to represent *V. lactea*. And, again, in changing the name of Gerarde’s species, from *V. canina* into *V. sylvatica*, the latter name has unfortunately not been applied to the common species in its totality, but only to its more luxuriant forms. This unfortunately partial change and application is proved, among other evidences, by the author of the Manual (the work in which the change is made) indicating *his V. canina* to be “common,” and *his V. sylvatica* only questionably “common?” But the *V. canina* of Gerarde and Smith (the *V. sylvatica* of various continental authors) is a hundred times more common in England, than is the other species (the *V. canina* of continental authors) figured by Dillenius, and described by Smith, from small examples, under name of *V. flavicornis*.

Through the mis-references of particular forms to the wrong species, and the partial change of name above mentioned, the present application of “*Viola canina*” is becoming very vague; and the use of the name is too likely to confuse the ideas of readers and writers,

because it will represent different species, or different combinations of forms, according to the individual who employs it as a name. I propose therefore to substitute in this paper three other names for the three species, such as ought not to confuse any clear-headed reader, and which I will apply comprehensively as designations of the respective species, not restrictedly to special forms or states of luxuriance. The question, whether the second and third are truly and permanently distinct species, may be waived for the present. The three apparent species, each including subordinate varieties, are these :—

1. Gerarde's Violet = *Viola canina*, of Gerarde, Smith, &c.
2. Dillenius' Violet = *Viola flavicornis*, of Smith, in E. F.
3. Smith's Violet = *Viola lactea*, of Smith, in E. F.

The authors of all our general floras of Britain, and probably those of all our local floras, up to the date of Babington's Manual, in 1843, applied the name of "*Viola canina*" to Gerarde's Violet. If including either of the two other species under the same name, as varieties, Gerarde's Violet was still their type of *V. canina*. I have myself, as above intimated, no doubt whatever that Mr. Babington's typical idea of "*Viola canina*" was still a form of the same species (Gerarde's Violet) even to the publication of the second edition of the Manual, in 1847. This has been lately denied by Mr. F. J. A. Hort, among some good remarks on the violets, published in the 'Botanical Gazette.' But the internal evidence afforded by the Manual, in connexion with other publications of the same author, is amply sufficient to bear out the opinion which I thus express. It is highly probable that Mr. C. C. Babington may have seen cause to alter and correct his views of these three violets *since* he printed the second edition of the Manual; and therefore I would be here understood to refer to his views as the author of 1843 and 1847, and not to any *modified* opinions of the individual botanist of 1849, which he has not yet announced publicly, so far as I know, although they may have been communicated to Mr. Hort.

If, then, all English botanists have intended Gerarde's Violet, under name of *V. canina*, why ask any question, or make any difficulty about it? Because continental authorities are applying the same name to a different species, and a different name to the same species; and because influential English botanists are now proposing to follow their example. The grounds for this change and transfer of

name are, that Linnæus intended Dillenius' Violet, rather than Gerarde's Violet, under his own application of the specific name "canina." The fact seems to be, that Linnæus included both species under the single name; a large form of Dillenius' Violet, and (apparently) a small form of Gerarde's Violet, being preserved as examples of *V. canina* in his herbarium, three specimens of each. The Linnean *Viola canina* is thus a group of two species, or perhaps more; and in subdividing this group into its proper and particular species, it would surely have been the better course to restrict the old name of "canina" to Gerarde's Violet, as the species originally intended by it; instead of dis severing it entirely from the original species, and giving it to that different species which had been distinguished from Gerarde's Violet, by Dillenius, so early as 1724. It is reasonable to suppose that, in adopting the old name, Linnæus intended to continue it to the old species. He may have written the character of his *V. canina* from a specimen of one of the other species, "lumped" under that name; but, if so, this was simply an error on his part, in describing the wrong species of the group as the true *V. canina*.

The question now before us is, are we to adhere to the nomenclature of Smith and other English botanists, who have followed the "better course"?—or, are we to seek future uniformity of nomenclature by adopting the new application of the names, as proposed by Fries and many other continental botanists? There may be no great objection against taking up the name of "*sylvatica*," instead of "*canina*;" for the former would in future be applied more precisely than the latter to Gerarde's Violet. But there is a strong objection to be urged against transferring the name of "*canina*" to Dillenius' Violet; because in all past English books it means a different species, and will continue to do so in many future books, lists, &c. For instance, henceforth, when we see "*Viola canina*" in a list of plants, how are we to know whether this name intends Gerarde's Violet or Dillenius' Violet?—the original *V. canina* or the substituted *V. canina*?

In the course of the years 1848-9 I have been many times asked for specimens of *Viola*, and many have been sent to me, with questions about the species and names. And through the obliging aid of Mr. Borrer, this year, in giving me plants of *V. lactea* and *V. Ruppilii*, which I had not before known in a living state, my collection of the British forms under cultivation is now nearly complete. Some account of the three species may therefore not be useless or out of place here.

1. *Gerarde's Violet* is readily distinguished from the other two, by its short, upright, central stem; from which the flowering branches are produced laterally, and extended almost horizontally, though ascending towards their extremities. On luxuriant plants, in damp and shaded situations, these flowering branches are occasionally a foot and upwards in length; but they are annual only, and die back to the main stem in winters of ordinary severity. The leaves are thin and flexible, broadly cordate; the upper more or less attenuating into a point; the lower occasionally cordate-reniform. The flowers are lilac-purple, varying into very pale lilac. The green colour of the plant has a yellower cast than in the other species. The capsules are longer in proportion to their breadth, but too variable to afford a safe character. This is undoubtedly the *V. canina* of Smith, and is the species figured in 'English Botany,' 620. The figure would have been quite characteristic, though curtailed, if the artist had not omitted the two or three leaves which should have appeared from between the stipules which are represented as terminating the central stem. A very small form of the same species, my "dwarf violet," is given in the 'Supplement to English Botany,' 2736, as the *Viola flavicornis* of Smith, on the authority of the late Mr. E. Forster. This was an error, as I have already shown in the 'Phytologist,' ii. 1018. To *Gerarde's Violet* must be referred the *V. canina* of Babington's Manual, first edition, with the first and second varieties, *sylvatica* and *pusilla*, but not the other varieties. In its large form, it is the *Viola sylvatica* of the second edition of the Manual; and in its ordinary and dwarf forms, it is inextricably confused with the *V. canina* and variety *pusilla* of the same work, as shown by the references to the figures of 'English Botany;' though the description is misapplied, and does not belong to the same species as the figures which are referred to.

2. *Dillenius' Violet* is known from the preceding species by the want of the short central and sterile stem. The flowering branches are produced by repeated subdivisions of the stem itself, and are not lateral growths from it. Though partially dying back in winter, these branches are perennial at their bases, and the plant thus acquires something of the habit of a very dwarf shrub. The leaves are thick and rather rigid, variable in shape, with a cordate base, mostly inclining to ovate, if small or early, and to triangular-ovate, if large or produced later. The flowers are blue, or bluish purple, varying through very pale blue into whitish. The prevailing colour of the leaves and whole plant is a dark grayish or bluish green. In its dwarf form, this

is the *V. flavicornis* of Smith's herbarium. In its intermediate form it is the "Surrey Violet," several times mentioned in the 'Phytologist.' In a larger form it becomes the *V. Ruppil*, judging by Mr. Borrer's garden plant so named. And I presume it to be the two varieties, *montana* and *Ruppil*, of Babington's *Viola canina*. It has not been figured in 'English Botany;' the dwarf form of Gerarde's violet having been there erroneously substituted for the dwarf form of the present species, as above intimated. The early flowering state, and the later seeding state of the "Surrey Violet," might readily be mistaken for different species.

3. *Smith's Violet* closely resembles Dillenius' violet, particularly in its smaller forms. It is to be distinguished by its narrower leaves, inclining to lanceolate, though variable in form; and they are rarely, if ever, cordate at the base. The flowers are paler. The capsule is proportionally shorter and blunter. But I do not feel myself yet sufficiently acquainted with the range of variation in this species to speak confidently of its distinctive characters. It is figured in 'English Botany,' 445; and the living plant from Mr. Borrer's garden corresponds pretty well with that figure; but in my own garden its flowers have hitherto been apetalous, and the plant remains small, being as yet kept in a small flower-pot. I am indebted to the Rev. W. A. Leighton for a dried specimen from his garden, taken from a Sussex plant of *V. lactea*, given to him by Mr. Borrer, and which has expanded to thrice the size, and appears to form a connecting link from *V. lactea* to *V. stagnina*. Several of the localities recorded for *V. lactea* either produce both this and the preceding species, or else belong properly to Dillenius' violet. These three species vary much in luxuriance, and their varieties have been described under different names. The following list may aid in showing their nomenclature:—

I. GERARDE'S VIOLET = *V. canina* of Smith, Hooker, &c.

1. (Luxuriant) = *V. sylvatica* of Bab. Man. ed. 2.

2. (Ordinary) = *V. canina* of Eng. Bot. 620; rather large.

3. (Dwarf) = *V. flavicornis* of Eng. Bot. Sup. 2736.

II. DILLENII'S VIOLET = *V. canina* of Bab. Man. (in part).

1. (Luxuriant) = *V. Ruppil* of Mr. Borrer's garden.

2. (Ordinary) = *V. canina*, *var. montana*, of Bab. Man.

3. (Dwarf) = *V. flavicornis* of Smith's herbarium.

III. SMITH'S VIOLET.

1. (Luxuriant) = "V. montana, *var. stricta*" (Cyb. Brit. 170)
2. (Ordinary) = V. lactea of Mr. Borrer's garden.
3. (Small) = V. lactea of Eng. Bot. 445.

I have a very fine violet from Mr. Borrer, under name of "montana," which closely resembles V. elatior or V. persicifolia, and appears to be distinct from the three above mentioned; but I do not know whether it was of English origin, or not so.

HEWETT C. WATSON.

Thames Ditton, August 15, 1849.

P. S. (August 18th).—Mr. Hartman, an excellent Swedish botanist at present in London, son of Dr. Hartman, the author of the 'Scandnaviens Flora,' has this day intimated to me his opinion that the small specimens of "Viola canina" in the Linnean herbarium belong to V. arenaria, rather than to V. sylvatica. But whether this be the case or not, there can be no doubt that the plant now designated "V. sylvatica" formed part of the aggregate or group of species, to which Linnæus applied the name of "canina." H. C. W.

Botanical Appointments in the Queen's Colleges, Ireland.

SOME three years ago various candidates were spoken of as offering themselves for the Chairs of Botany (since united with Natural History) in the three new Queen's Colleges, Ireland. It is now reported that the appointments have been at length made, and that Dr. Dickie, Mr. Hincks, and Dr. Melville are to be the Professors. The selection of Dr. Dickie is highly creditable to the Board; the papers which he has already published on botanical subjects, being such as to place him in an elevated and honorable position among scientific naturalists; and giving promise, we trust, of much valuable exertion yet to be made by him for the promotion of science. Though Mr. Hincks and Dr. Melville are less known as contributors to the advancement of science, we have no reason to question the suitability of the appointments in their cases. One of the candidates, Mr. G. H. K. Thwaites, had retired from the field of competition, by accepting an appointment to the garden at Ceylon, as successor of Mr.

Gardner, where his talents will find ample scope. And Mr. H. C. Watson had some time ago withdrawn his application for one of the Chairs in Ireland; otherwise, there is reason to suppose he would have been nominated by the Board of Queen's Colleges.

C.

New Locality for Hypericum linariifolium.

By F. H. GOULDING, Esq.

WILL you have the kindness to inform the members of the London Botanical Society through the pages of the 'Phytologist' of another habitat for *Hypericum linariifolium* (*Vahl*) besides the one I communicated to them some time since, which was by the side of a hedge, ascending a hill from Blakstone to Maristowe, near the river Tavy, Devon? It is now to be found plentifully about the Morwell Rocks, river Tamar. I collected several specimens there yesterday, together with *Asplenium lanceolatum*, and *Orobanche major*, and proceeded to search for the *Physospermum Cornubiense* at the habitat mentioned in Hooker's 'British Flora,' and communicated by the Rev. W. S. Hore. It is now completely eradicated, the wood being metamorphosed into a corn-field.

F. H. GOULDING.

13, Bedford Street, Plymouth.

June 29, 1849.

Note on a few Rare Plants occurring at Kelvedon.

By E. G. VARENNE, Esq.

ONE evening during the last month an agricultural acquaintance of mine brought a plant from Salcot (a parish on the borders of the salt marshes), which he said infested two or three places in one of his fields, as bad as twitch. He seemed pleased with the idea that he should succeed in grubbing it all up. The farm labourers informed him that the weed had been growing in the field for many years past. On examination the plant proved to be *Lepidium Draba*, *Br.*, as described by Hooker and Babington.

Salcot is an Essex locality for several other of our rarer plants.

Lepidium latifolium covers the banks by the road-side, and grows in the meadow land on both sides of the creek.

Trifolium maritimum is found among the grass, in the meadows. *Myriophyllum verticillatum* grows in a ditch near the wharf. *Cynoglossum sylvaticum* is to be met with here, as well as in other parts of the east of the county, but it has nearly disappeared from the station recorded in the 'Botanist's Guide,' between Witham and Kelvedon, only two or three plants remaining, and it can no longer be discovered in Braxted by the way-sides.

A *Potamogeton* with large fruit is common in the salt-water ditches, and agrees with the description in Mr. Babington's book of *Potamogeton pectinatus*, *L.* *Sisymbrium Sophia* is not an uncommon weed at Salcot.

It may be as well to take the present opportunity of recording the habitats of two or three plants of interest in other parts of this county. *Centaurea solstitialis* was found last harvest, at Berechurch, where it was growing in a field amongst the wheat, in tolerable abundance.

Juncus diffusus, *Hoppe*, inhabits Tiptree Heath, where I discovered it in company with my friend Mr. Bentall, two years ago. It also in the park at Rivenhall Place pretty plentifully.

Apera Spica-venti? A grass which was at first taken for *A. Spica-venti*, but which much resembles specimens of *Apera interrupta*, was found last autumn, near the railway station at Mark's Tey.

E. G. VARENNE.

Kelvedon, Essex, July 25, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, August 3, 1849. — John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

'The Journal of the Royal Agricultural Society of England' for July, 1849; presented by the society. 'The Pharmaceutical Journal and Transactions' for August, 1849; presented by the Pharmaceutical Society. 'Twenty Lessons on British Mosses,' by William Gardiner; presented by the author.

Dr. Joseph Dickson, of Jersey, and Miss M. Wilson, of Belfast, were elected corresponding members.

Mr. Jasper W. Rogers brought under the consideration of the meeting the purport of his paper read at the last meeting of the Society, on the 6th of July last, "On the Uses and Properties of Peat

Moss, and the Value of Peat Charcoal as a Disinfector and Fertilizer.” It may be necessary to mention that by the aid of peat charcoal Mr. Rogers purposes to consolidate and deodorize the solid matter of the London sewers, and whilst by that means benefiting the inhabitants of the metropolis, there would be placed within the reach of the agriculturist a manure of the most powerful description—pulverized, free from odour, and fit for transit by any conveyance. In 1845 he brought the subject under the consideration of the public, and it was then alleged that charcoal could not give that quantity of carbon to the root of the plant, the leaf and not the root being the portion which absorbed such sustenance. Often, however, since then he had tried the experiment, and the result had invariably been that the root, as well as the leaf, of the plant attracted the carbon, and therefore he was more convinced of the propriety of the system he had promulgated. From the experiments he had made he had found that peat charcoal possessed far superior advantages to wood charcoal: it had had a deodorizing effect which wood charcoal had not; and if they considered how such an agent could be made to operate upon the sewage matter of London, no one could be left in doubt as to the public benefit. Wherever it had been used it produced the most extraordinary effect. If excretia, in its natural state, was intermixed with charcoal, it at once absorbed and took up all those gases which, if exposed to the atmosphere, were lost. It kept that nutriment until such time as the dryness of the earth surrounding a plant intimated its lack of sustenance, and gave forth its revivifying influence when it was wanted. In short, by the admixture of charcoal with excretia all the gases were at once taken up and retained, ridding the public of nuisance and disease, and giving to the land the entire benefit. Peat charcoal was, perhaps, the greatest absorbant known. It would take up and retain about 80 to 90 per cent. of water, and at least from 90 to 100 volumes of those noxious gases arising from animal excrement and other putrescent matter. Hence its great value for effecting deodorization, and for retaining all the value of the liquid, as well as its volatile products. Equal parts of prepared peat charcoal and excretia would, under almost every circumstance, if properly intermixed, produce a manure of almost incalculable value. The proportion, however, of charcoal might be more or less in some instances, even down to one-third.

Mr. John Bishop, F.R.S., inquired of Mr. Rogers, whether he was not aware that the peat raised from the bogs of Ireland could be

turned into other uses besides that he had pointed out, and in answer to which,

Mr. Rogers said he could not do better than quote the following paragraph from his original paper, read to the Society on the subject: "In its natural state peat moss had several peculiarities. It contains, in different proportions, ammonia, pyro-ligneous acid, tar, &c., and also a very singular production, a 'fatty matter,' which, when purified, closely resembles spermaceti, and makes a very beautiful candle. Mr. Reece has recently patented a process for the extraction of these articles; and I am happy to say, a few energetic Englishmen have not feared to risk both themselves and their fortunes to commence operations on an extensive tract of bog and mineral, in the county of Antrim, where they have coal as well as peat, and they purpose carrying out the production of iron from ore, which is upon the property. Possibly 'Price's Patent Candle' may yet be rivalled by 'Reece's Bog Spermaceti.' To speak seriously, the production is really beautiful, and gives a pure and strong light. The question to be solved, however, is, can it be obtained in sufficient quantity to be profitable? It is found in its natural state, at times, in small quantities collected together, by some peculiar local filtration or perhaps affinity, which draws it from the mass around, to one spot. I have seen a collection of it, a little well, I may say, of six to seven inches in diameter, containing the matter pure, and about the colour of butter. The superstitious tradition of the peasantry is, that the fairies hide it for their use, and hence it is called 'fairy butter.' It is but rarely found in that state, and is then treated with great reverence."

Dr. Cook and Dr. Semple expressed doubts as to the possibility of plants receiving carbon through the root, and quoted Sir Humphrey Davy and Liebig to support their argument.

Those gentlemen were replied to by Dr. Redmond, who contended that Mr. Rogers's chemistry remained untouched by their arguments. By his proposition the plant drew up by its root carbonic acid, which the secretions converted into charcoal.

The Rev. Mr. Stoddart and other members of the Society having expressed themselves in terms favorable to Mr. Rogers's views of the subject,

The Chairman expressed the gratification the Society had experienced from Mr. Rogers bringing the subject before them, and the meeting then adjourned, after passing an unanimous vote of thanks to that gentleman.—*G. E. D.*

Occurrence of Anacharis Alsinastrum (Udora canadensis) in the Trent, near Burton-on-Trent. By EDWIN BROWN, Esq.

I DISCOVERED a few days ago *Anacharis Alsinastrum* growing in profusion in the Trent, near this town; it also grows in the canal in this neighbourhood.

Several years ago I paid considerable attention to the botany of this neighbourhood before entomology engrossed my leisure moments, and I feel convinced this plant did not then grow in our streams, otherwise it would have been discovered before. This fact, taken in connexion with the very recent discovery of the plant in Great Britain, leads one to the conclusion that it is not indigenous. It now forms very large submerged masses in the Trent, of a striking appearance. I have, however, found as yet but few flowers, and those are all the so-called female flowers. Contrary to the experience of Mr. Babington, as given in the 'Annals of Natural History,' every flower I have examined contained three stigmas and only two filaments.

The rapid dispersion of this species throughout the country appears to have an analogous instance in the wonderfully speedy diffusion of the mollusk *Dreissena polymorpha* over the beds of all our rivers and canals.

EDWIN BROWN.

Burton-on-Trent, August 20, 1849.

Notice of 'The Rudiments of Botany; a familiar Introduction to the Study of Plants. By ARTHUR HENFREY, F.L.S., Lecturer on Botany at St. George's Hospital, author of 'Outlines of Structural and Physiological Botany.' With Illustrative Woodcuts.' London: Van Voorst, 1849.

IF there were room for a rudimentary work on botany this unpretending little volume might edge its way into notice, for it is cleverly written, of enticing appearance, and very prettily illustrated. We heartily wish it success, but at the same time we must not abandon the critic's office of criticising where opportunity offers. Mr. Henfrey is evidently a very ardent book-botanist; he reads a great deal, reads very attentively, and understands and applies what he reads: this was very observable in his 'Outlines,' and in noticing that work we bore willing testimony to its excellence, especially in the points to

which we are now alluding. This quality, however, occasionally leads Mr. Henfrey into the solecism of making too much display of knowledge lately acquired : thus he reads, is struck with the beauty of a theory or hypothesis that comes suddenly under his notice : he devours and digests it, and then serves it up to every one who falls in his way. We recollect once telling a little boy the Guy Fawkes legend, greatly to his astonishment ; and we heard him many, many times within the next day or two repeating the mystery to every one he talked to,—children, servants, even graybeards who had seen fifty fifths of November, were informed “ There was once a very wicked man,” &c., &c. Mr. Henfrey is the exact counterpart of this child ; he is delighted with every new acquisition of knowledge, and supposes it as new to others as to himself. After all, this weakness, if it be one, is a pleasing weakness, and but that hypotheses thus implicitly received, and thus constantly intermingled with fact, occasionally obscure what would otherwise be extremely clear and simple, we would not hold up so much as a little finger against it. Now certainly a proof of our allegation must be given ; and although the truth of the allegation has forced itself on us all along, as we read from title-page to colophon, or rather to lion, for the book ends with the effigy of a lion rampant, still there is no salient point to cite as an apt illustration. However, beginning the book again, the first description—that of the flower—offers a sufficient, though perhaps not forcible example of our meaning. It would appear our author has lately found, devoured and digested Dr. Lindley’s striking remarks on Morphology : it will be seen how those remarks are served up for our benefit in the following few lines, which we extract consecutively :—

“ The flowers are composed of a number of different parts, and as *these are considered to be in reality peculiar forms of leaves, like them they are, in the first instance, combined and folded up in buds. A flower-bud is to be compared with the leaf-bud, which afterwards unfolds into a stem bearing leaves. In the flower no internodes are formed between the leaves, and they thus remain grouped in circles or a close spiral. The flower of the Wall-flower presents us with four leaves in the outer circle, and these will be best examined on a bud, as they fall off soon after it opens. These are green, like the true leaves, but are smaller and much changed in their general appearance. They are called sepals, and collectively they form the calyx, or cup of the flower, which is always known from the other parts by being the outermost circle. To the calyx succeeds another circle of four bodies, which still retain in some degree the character of leaves,*

although their brilliant colour here, as in most plants, affords a ready mode of distinction. These bodies are called petals, and the collective name of corolla is applied to them. All the coloured *leafy bodies* within the calyx of the flower are considered to belong to the corolla. The two circles just described are present in the greater number of flowers, but they are not actually necessary for the formation of fertile seeds. They enclose and protect, while young, those bodies especially devoted to the formation of the seed. They are therefore called enveloping organs. Within these enveloping organs, which we may now remove with a penknife, we find, in the first place, six bodies or organs, each of which consists of a little thread-like stalk, bearing at its end a yellow oval mass. These organs, *which are still to be considered as peculiar forms of leaves*, are called stamens; the thread-like stalk is the filament, the mass above, the anther, which, in advanced stages of the flower, will be found to have burst by two splits, displaying two cavities, which previously contained a fine dust, called the pollen, now scattered around. In the centre of the flower appears a green body, *which is found to be constructed of two or four leaves, united at their edges so as to enclose a cavity within.* This green body is called the pistil, when regarded as one piece; and the summit, which is somewhat swollen, is the stigma."—p. 9.

Now, if our readers will kindly take the trouble to read the entire extract, leaving out the italicised passages, which bear only on the ingenious hypothesis of Morphology, and not on the description of the floral envelopes, he will find it much clearer, more intelligible, and more instructive.

With regard to the hypothesis itself, it has some facts very much in its favor; and we have observed in several instances that, the sap being diverted from its course by Aphides, the pistil has assumed a leaf-like appearance; and such abnormal appearances as this have been urged in support of the hypothesis: but those acquainted with gardens, and hedges, and woods, and orchards, and who learn from such things as well as from books, must have observed other phenomena. For instance, a species of *Aphis* infests the roots of *Pyrus japonica* just at the surface of the soil, and the effect of its diverting the sap from its usual course is to cause the root to throw out flower-buds, and brilliant scarlet flowers are frequently thus produced on the root: the morphological hypothesis applied in this case must lead to the conclusion that the root was a flower, and merely assumed the functions of a root for especial purposes; and yet science denies

to the root the power of even bearing a bud. Again, another species of *Aphis* attacks what gardeners call the Midsummer shoots, and these shoots thus attacked, particularly in apple-trees, and very particularly in the Ribstone-pippin, produce flowers in place of leaves, and spread open rosy blooms to the hot suns of July and August: *ergo*, on morphological principles the leaves are normally blossoms, although usually assuming the form and functions of leaves. Now all this does not negative the assertion that the pistil is composed of four leaves, but we think it abundantly shows that such a conclusion is at present conjectural only, and does not take rank with the established facts which are generally supposed to be 'The Rudiments of Botany.'

Again, this really clever book occasionally, we may perhaps say frequently, wants that perspicuity which is so essential in an elementary work. The reader will perhaps observe this sufficiently in the paragraph already cited, but we will take the next, in order to avoid repetition.

"There are other perennial plants which have their stem underground, and display above ground every summer a new *stalk bearing flowers*, which *again dies* down to the ground in autumn, as, for instance, the Asparagus or the Hop, or *looses its flower-stalk* every year, and produces a tuft of leaves, which live through the winter; as, for instance, the Daisy and the Flag."—p. 21.

In both extracts the italics are our own. Now we have to remark that the word *again* seems unmeaning, because the stalk in question has not died before. Indeed, the student will have great difficulty in deducing any meaning whatever from this obscure paragraph; but the botanist, after two or three perusals, and recurring to his knowledge of the plants mentioned, will perceive the terms *loosing* and *dying* are not intended to be contrasted, but are used to express the same meaning: he will also perceive that Mr. Henfrey, in addition to the provincial, and we think inelegant, word *loosing*, has given a new and incorrect name to the stem of the Asparagus and Hop: he calls it a *stalk bearing flowers*, and then contrasts it with the true flower-stalk of the Daisy and Flag. Again, the leaves of the Daisy and Flag should be distinguished from the others as persistent. Mr. Henfrey knows all this: he is a good structural botanist, and his writings abundantly testify his knowledge; the confusion does not exist in his mind, but in his mode of expression. "Botany, like every science and art, requires that particular names should be applied, in an

exclusive sense, to particular things.”* Had he attended to this rule instead of merely reciting it, he would not have introduced a new and inelegant word for *dying*, or a new and inappropriate term for *stem*.

There is one other subject on which we must say a few words in the way of disapprobation : we allude to the explanation of system being confined exclusively to the Linnean. Without entering into the merits of the two systems, surely the general use of the Jussienian, demands that in any rudimentary work it should be carefully explained. We grant that Mr. Henfrey has a perfect right to *prefer* or *recommend* either system, but he should *fully instruct beginners in that which is now universally employed*. K.

On the Experiments of raising Primulæ, &c., from Seed.

By the Rev. J. S. HENSLOW, M.A., F.L.S., &c.

IN running my eye over the ‘Phytologist’ I see the record of sundry experiments with *Primulæ* and *Anagalles*, recalling two old experiments of my own, in which I considered I had obtained *Primula vulgaris* from *Primula veris*, and *Anagallis arvensis* from *Anagallis cærulea*. I have not lost sight of this inquiry since, and may some day have an opportunity of reverting to it. Unless a thought is recorded at the moment it is often not recorded at all, and I wish to say that although *negative* testimony is never entirely worthless, and often very valuable, it cannot be of much weight in comparison with a little *positive* testimony in deciding the question at issue. Thousands and millions of seedlings may and will come *true*, to use a common gardening expression, in most cases where a strong impress of a particular character has been mysteriously imparted to some variety ; and yet a fortunate opportunity may at length arise for establishing the possible, or at least for pointing out the probable, specific identity of plants whose forms are extremely dissimilar. We all know the beautiful blue of the common borage (*Borago officinalis*). It must be five or six years since I observed a white variety in a single plant in a hedge between this village and Ipswich. I brought home a few seeds, and the plants that sprung up have been allowed to seed freely among some currant-bushes in my kitchen-garden, and numerous specimens have since appeared. Every one of them has

* This axiom was first contended for by Mr. Newman (Ent. Mag. i. 395, et seq.)

borne white flowers. Here is an instance, quite as remarkable as that of *Anagallis cærulea* not changing colour in some of the experiments on record. I cannot at this distant period sufficiently recall all the precautions I took in the experiment with the cowslip, and if there really was any "hitch," as a correspondent of the 'Phytologist' has suggested, it may possibly have happened that I selected my seed from such a plant as that which Mr. Watson has called the Claygate oxlip, a variety not uncommon near Cambridge; but I well remember saying to myself whilst I was sowing the seed, "Now if this does change, I will not be persuaded that the result has been obtained from any chance seed in the ground." The *Anagallis* experiment was so perfectly satisfactory, that I cannot possibly admit there could have been any mistake. "But (I have heard it said) there may be two species, one of which bears either red or blue flowers, and the other is true to blue only"! Surely this is rather hypothetical, not to say somewhat trifling with positive results. I cannot at the moment recall the circumstances of the experiment, but I am strongly impressed with the notion that *Anagallis grandiflora* has also been raised from *Anagallis Monelli*, which would be a precisely analogous example. But perhaps there is a "true blue" *Anagallis Monelli*, and a turn-coat also!

It was once proposed that the late Profesor Don should have been the medium of communication between a group of botanists who were to interchange seeds, and try what effect might be produced by sowing certain possible varieties of the same species in different and distant localities. But the scheme was never carried into effect, chiefly owing to poor Don's death. Considering the flourishing crop of botanists of all varieties that has arisen since then, perhaps such of your zealous contributors as have sufficient leisure for reviving the attempt, may organize a Cohors Botanicorum for this special purpose. Much may be expected from a carefully-conducted series of experiments made with reference to specific identity; and perhaps some ink and no little discussion will be saved in future if an accurate record of the results obtained were to be inserted, from time to time, in the pages of the 'Phytologist.'

J. S. HENSLOW.

Hitcham, Suffolk, September 14, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 609).

Veronica scutellata. In spongy, turfy bogs, in wet meadows, on damp heaths, and by the sides of pools and ditches. Quite rare in the Isle of Wight. On deep spongy bog with *Vaccinium Oxycoccus* in the valley of the Medina, in meadows betwixt Stroud Green and Cridmore, 1838. Amongst long grass in a swampy pool near Hampstead farm. Edge of a pool on a common called Goldens, in the parish of Freshwater. Apparently not unfrequent in mainland Hants. On Petersfield Heath. Brockenhurst Bridge. On Wolmer Forest. New Forest, in the neighbourhood of Stoney Cross; Mr. J. Hussey in litt. Droxford Forest; Rev. E. M. Sladen.

———— *Anagallis.* In ponds, ditches, slow streams, and muddy, watery spots; more frequent in the Isle of Wight than the last, though not very common. In marsh ditches at Easton, Freshwater Gate, sparingly. On Schoolhouse Green, Freshwater. In the moat at Wolverton, by Shorwell, in plenty. Common in watery places at Brixton or Brightstone. By the mill at Lower Knighton, and elsewhere about Newchurch. Near Carisbrook, St. Lawrence &c. Wet places near Ryde and at Brading; Mr. Wm. Wilson Saunders. Generally diffused, I believe, over the county, where I have remarked it in various places, but have not made memoranda of stations for a plant so common as this is in the south of England. Broad Meadows, Warnford; Rev. E. M. Sladen. Stubbington, Titchfield river; Mr. W. L. Notcutt.

———— *Beccabunga.* In and on the margins of clear shallow brooks, ditches, pools, springheads and muddy plashes; everywhere throughout the county and Isle of Wight, most abundantly. A variety with white flowers I found, May 25, 1848, in a pond betwixt Froxfield and Privet, near Petersfield.

———— *Chamædrys.* In woods, groves, meadows, pastures, hedges, and grassy, shady situations, as orchards &c.; universally over the county and island. Var. β . Leaves all shortly stalked, upper ones ovate-oblong, acute. In the lane or road leading to Haven Street through Firestone Copse, on the hedge-bank a little beyond the farm at Kite Hill; Mr. Thos. Meehan, jun., Oct. 1845! Var. γ . Flowers very pale, almost white. In a lane betwixt Kerne and

Alverstone, growing with the ordinary blue-flowered kind, in some abundance, May 9, 1849. Bird's-eyes is the familiar appellation in the Isle of Wight, and I think in other parts of England, for this common but beautiful flower. The very nearly allied *V. Teucrium* of the continent may, I conceive, be expected with considerable probability to grow wild on this side of the channel.

Veronica montana. In damp shady groves, woods, copses, and on moist hedge-banks, in many parts of the Isle of Wight, but especially in East Medina; abundantly. Very common about Ryde, in Quarr Copse, at Apley, the Priory, &c. Frequent in woods at West Cowes, and very general at Shanklin about the Chine; in Appuldurcombe Park and woods adjacent, in plenty, besides various other parts of East Medina. Less frequent in West Medina, about Newport, at Calbourne, in Lordon Copse near Shorwell, and many other parts of that hundred. Probably frequent over the entire county, but I have myself noticed it only in the great beech-hanger in Chawton Park, near Alton, May, 1848. Chandler's Ford, near Otterbourne, on the Southampton road, but I have forgotten my authority in this instance. A variety of this pretty species with flowers of a delicate rose colour, streaked with purple lines, is not uncommon about Ryde. The close resemblance of the compressed orbicular capsule to the pod of a *Biscutella* might have suggested the name of that genus, as more appropriate for the specific appellation of this *Veronica* than its present alpine one of *montana*, which is far less applicable to our plant than to many others of the genus, since it affects indifferently low as well as elevated situations, both in Britain and on the continent, and is assuredly not a particularly mountain species.

———— *officinalis*. In dry woods, pastures and heathy places, and on hedge-banks, in a sandy, arid soil; frequent throughout the county and Isle of Wight. N.B.—*V. spicata* has been indicated to me as found on St. George's Down, near Newport, in this island, and by Miss A. M. Yonge as growing at Cranbury Park, near Winton, at the edge of the copse, in dry gravelly soil. I have never fallen in with this species in the former station, and think it probable that *V. officinalis* was mistaken for it at Cranbury; yet it is a plant not unlikely to prove a native of our upland districts, and should be sought for accordingly.

———— *serpyllifolia*. Everywhere common in the island and county in open sandy fields, waste places, moist woods, pastures and by road-sides, &c.

———— *arvensis*. Frequent in dry barren or sandy pastures, on

walls, hedge-banks and amongst corn, throughout the county and Isle of Wight. Of extremely diminutive size, often not half an inch in height, on the sandy spit below St. Helens, opposite Bembridge, and which I was once nearly mistaking for *V. verna*. "Between Kingsley and the New Inn near the line of the military road (from Farnham to Petersfield) there is a very remarkable small annual *Veronica*, approaching closely to *V. verna*. It is most abundant in that sandy district, and I wish to call attention to it, as it is, I expect, something out of the common way. It cannot be *V. arvensis*, though at first sight it appears nearest to it." (Mr. Wm. Pamplin in litt.). If not the above dwarf form of *V. arvensis*, or actually *V. verna*, there is a possibility of its proving to be either *V. præcox* or *acinifolia*, both natives of the north of France and of Germany. Circumstances have for two seasons frustrated my intention of going in quest of Mr. Pamplin's plant, which must be looked for early in the year, as it soon dries up in that arid district and disappears for the summer. I hope to be able to do so next spring, and to be rewarded for my trouble with one, if not more, of the three species above mentioned. The neighbourhood of Petersfield is on every side of the town a glorious country for plants, whether we explore its low sandy districts, its bogs, moors, and ancient forest ground of Bere and Wolmer, or, ascending the precipitous chalk range to the northward, dive into the dark recesses of the majestic beech-hangers of Froxfield, where the richly wooded scenery of Stoner Hill and the neighbouring summits, covered to their highest points with luxuriant timber, broken here and there with teeming fields of wheat and barley, stretch in long succession east, west and north, embracing the scarcely less elevated and steep slopes of Bordean Hill, and the bosky hangers of Hartley, Nore Hill and Selborne. So abrupt and strongly defined are the outlines of these chalk hills, and so precipitous their flanks, that we may almost excuse the epithet of "majestic mountains" applied to them by Gilbert White, and repressing the smile inclining to play over our features at this magniloquent phrase, join with him in ascribing to their bold contour somewhat of alpine sublimity. The resemblance in the scenery of Stoner Hill to some of the lower mountain passes in Italy or Switzerland, I have heard remarked upon by persons who had seen both; nor do I think that in this instance their imagination has so far got the better of their judgment as not to have much of truth on the side of the assertion.

Veronica agrestis. Common everywhere in waste and cultivated ground, fallows, on and under walls, banks &c. A somewhat remark-

able variety of this plant has been noticed for some years past by Mr. Albert Hambrough, amongst long grass at Steephill, growing with an upright stem, and bearing a solitary terminal flower on a long peduncle, of a fine blue and nearly as large as the blossom of *V. Chamædrys* !!! A widely-naturalized species abroad, which I have gathered even at New Orleans.

Veronica polita. With the preceding, and perhaps not much less frequent than it over the county and island. The var. β . *grandiflora* of Babington's Manual is probably an analogous form to that alluded to of the foregoing species, but I have never met with it in Hampshire.

‡——— *Buxbaumii*. Naturalized in waste ground, cultivated fields, and on hedge-banks in the Isle of Wight; rare, but I believe now well established. First noticed by me in 1844, as a weed, in the garden of a person named Herbert, at the south end of Royal Heath, Sandown, as well as in a field adjacent, and about the former barracks. In 1845 and 1846 I found it in very great profusion on the waste lots of that unlucky speculation yclept East Cowes Park, which not even proximity to royalty can help to colonize. In the ground at Binstead; Mr. Albert Hambrough! I have no station as yet to record for this handsome *Veronica* on the mainland of the county, but can scarcely doubt its occurrence there as a denizen, now pretty generally naturalized throughout Britain.

——— *hederifolia*. In waste and cultivated ground, fields, gardens and on hedge-banks; most abundantly. Our tillage-lands and lay-fields are often covered with the ivy-leaved Speedwell in the spring and early summer months.

Mentha rotundifolia. In damp pastures, hedges, wet thickets, and moist places by road-sides, also on the margins of ponds, ditches and streams. Truly wild in several parts of the Isle of Wight, principally in East Medina. In old native pasture-ground in the Undercliff, in various places, very abundantly, as about St. Lawrence, Old Park, Puckaster, &c. Rare about Ryde. At Binstead, sparingly. Hedges near Adgeton, in a field by White House farm, and by the pond in the farm-yard at the Grove. Near Newchurch, and abundantly in meadows near Lower Knighton Mill. Niton Village. By the stream at Bridge and Budbridge. At Brixton, and near Atherfield and elsewhere in the island. Apparently very rare on mainland Hants. Pretty plentifully in a wet hedge at Meonstoke, near the little bridge of the stream on the Corhampton side, Aug. 21, 1849. Road-side near Alton; Mr. E. Forster, jun., in Bot. Guide. These are the only stations known to me in this part of the county, but

further observations will probably show that it is more common there than it appears to be. Well known in the island as Horse Mint, a name applied in the books to the following species. I remarked it abundantly naturalized in the pastures of the mountainous districts of Jamaica, at several of the pens or grazing farms of that island.

Mentha sylvestris. In similar places with the last, but very rare, at least in the Isle of Wight, where it has never occurred to myself. Stated in the 'Botanist's Guide' to have been found here by Mr. S. Woods, but no locality is given. Abundantly at Selborne in the meadow below the church, and along the stream flowing through it, and profusely in a marshy spot at the entrance of the Lith, at the foot of the steep end of Dorton, as likewise at the Priory, in a meadow close to the stream. At Great (Bishop's) Waltham; Mr. E. Forster, jun., in Bot. Guide.

†? — *viridis*. Wet places; very rare in the Isle of Wight, and I fear not truly wild with us. Plentifully along the stream flowing by Lord Yarborough's marine villa at St. Lawrence, all the way to the beach; Rev. G. E. Smith (1839), who, like myself, thinks it may be only an escape from the kitchen-garden higher up, through which the stream runs, and by which it was carried down to the shore. It is, however, now completely naturalized. I have no mainland station for the Spear Mint as yet. The var. β . *crispa*, with curled leaves, I found a few years back growing in considerable plenty on dry banks in Ventnor Cove, with the commoner form—the outcast of some garden.

—— *piperita*. In watery places; very rare. Near Ryde, Isle of Wight; Mr. J. Woods, jun., in Bot. Guide. The locality is unknown to me; nor have I ever been fortunate enough to meet with the Peppermint in a native state in this or any other part of the county.

—— *aquatica*. In wet thickets and hedges, on the banks of streams, ditches, ponds, and in other low watery places; most abundantly. The var. *citrata*, or what I take to be such, I think is not uncommon in the island and county generally.

†? — *sativa*. In damp or watery places; very rare, and scarcely indigenous. Var. β . *rubra*, or perhaps γ . *gentilis*. On a hedge-bank by the road-side between Calbourne and Brixton, probably not indigenous, as I could not find it a year or two subsequently, and there was a kitchen-garden at no great distance from the spot, from whence it might have been derived. Judging from the descriptions, which coincide almost exactly, our Isle-of-Wight plant, is

the *M. gentilis* of Smith and of Leighton's Shropshire Flora. *M. gracilis* of Smith, another and apparently very slight variety of *M. sativa*, and perhaps identical with the forms *rubra* or *gentilis*, is given on the authority of Sole (the *M. pratensis* of that author) as growing in the New Forest.

Mentha arvensis. Very common almost everywhere in moist waste and cultivated places, damp corn-fields, fallows, on ditch-banks and by streams, ponds &c. One of the best marked of the species of this troublesome genus, and in all its forms readily known by its odour, exactly assimilated to that of mouldy cheese.

——— *Pulegium*. On moist watery heaths and commons, village greens, and the shallow grassy margins of pools and plashes; very rare in the Isle of Wight. On St. Helen's Green (1838-39), very sparingly, but in certain years it occurs, I am told, more abundantly. By the great pond on Petersfield Heath,—the only Hampshire station known to myself for the Penny-royal, but many others doubtless exist, at least on the mainland portion of the county. Droxford Forest; Rev. E. M. Sladen. Stubbington; Mr. W. L. Notcutt.

Lycopus europæus. In and about the margins of ponds, ditches, rivers and brooks, in wet meadows, pastures and woods; frequent in the Isle of Wight, and I believe over the entire county. Very abundant in the pond near Hardingshoot Farm, where it constitutes great branching, bushy plants, three feet or more in height. Ditches in Sandown Level and on Rookly Moors, but so generally distributed over the island as to render an enumeration of stations unnecessary. It may be found in most of our damp woods and wet places, usually but sparingly, but occasionally in great plenty. Found in most parts of the county which I have visited. In great abundance and very tall by the stream a few hundred yards above the mill at Sheat near Petersfield. Corhampton. About Winchester, &c., &c. Droxford Forest and Exton; Rev. E. M. Sladen. Andover water-meadows; Mr. Wm. Whale. Near Temple, Selborne; Dr. T. B. Salter in Phytol. Place House, Iron Mills, Titchfield Common; Mr. W. L. Notcutt.

Salvia verbenaca. On dry banks and pastures, waste ground and by road-sides; not unfrequent in the county and island, particularly on the chalk. Scarcely found about Ryde; sparingly at Binstead; common at Bonchurch; and plentifully at Ventnor on banks facing the sea, in the Cove, &c., as also along the Undercliff in various places. By Freshwater church and elsewhere in that parish, frequent. Porchester Castle, and common between Porchester and Fareham, 1848. Hinton and Hunston; Rev. E. M. Sladen. Andover; Mr.

Wm. Whale. Hambledon; Rev. Messrs. Garnier and Poulter in Hamps. Repos. In various other places, very generally dispersed.

Var. β . Flowers larger, corolla more exserted. Close by the Old Church sea-mark, St. Helen's, some years back, but it has since disappeared.

Salvia pratensis. On dry and especially chalky pastures, banks, and borders of fields; very rare. In an old chalk-pit in Appuldurcombe Park; Miss G. E. Kilderbee! Through the kindness of that lady, to whose exertions in examining the flora of this island and parts of the county adjacent, I have so often had occasion to refer, I possess a single, though indubitable specimen of this very local British native, which, on inquiry, I found had been gathered in the above-mentioned locality by a groom of the late Lord Yarborough, along with some other wild plants, in July, 1838, and forwarded in a fresh state to Miss Kilderbee, at that time resident at West Cowes. I have since sought for it at Appuldurcombe, but in vain. The park is of great extent, and parts of it very sequestered and hilly; unless, therefore, some mistake was made as to locality, I hold the *Salvia* to have been in all probability truly indigenous there. Near Brookwood, West Meon; Rev. E. M. Sladen in litt. I have seen no example from this station, Mr. S. not being in the habit of preserving the plants remarked by him during his residence at Warnford. I can see no reason, however, for assuming an error in this instance, as Mr. S. was acquainted with our commoner species of *Salvia*, and the present is too conspicuous a one to be easily confounded with that or any other of our Labiatae. Moreover, *S. pratensis* has been found plentifully in Oxfordshire by my friend Wm. Wilson Saunders, Esq., and geographical reasons are not opposed to its occurrence as a genuine native of Hampshire, which I trust observations will ere long confirm. I do not know the precise spot in which the Meadow Clary was found by Mr. S., but on a rather hurried visit to the immediate vicinity of the station a year or two back, I saw nothing of it.*

Origanum vulgare. On dry banks and hilly pastures, in rough, stony woods and steep bushy places; in the greatest abundance over the chalk districts of the Isle of Wight and mainland. Profusely throughout the Undercliff, and very fine and abundant on the chalky slopes of the wooded valley near Rowledge. Plentiful, indeed, everywhere on the cretaceous system of Hampshire, as at Selborne, Hambledon, &c., &c., flourishing best in the upland parts of the county.

* Abundant and perfectly wild at Cobham, in Kent.—ED.

Maindell chalk-pit; Mr. W. L. Notcutt !!! and near the monument (Nelson's ?); *Id.*

Thymus Serpyllum. On dry turfy banks, pastures, and heathy, hilly places, abundantly. On the summit of our highest downs, and very commonly on old mole-hills. Var. β . citriodora. Road-side near the Sandrock spring. This, the lemon-scented thyme, is probably common with us in Hants. Another variety, with very hairy stem and leaves, is not unfrequent, as about Ryde, &c., &c. Dr. Darlington tells us, that within his recollection it was a prevalent vulgar notion in America that the wild thyme sprang up spontaneously in spots where human blood had been spilt by any casualty or violence. Fl. Cest. p. 347. The idea, though revolting, is not without its poetry; but how widely different from the images of peace and repose which the thyme-covered bank suggests to the rural muse in Europe! The common garden thyme (*T. vulgaris*) grows spontaneously and in plenty on a wall-top in Niton village.

Calamintha officinalis. In dry, open, sunny situations, on banks, by road-sides, borders of fields, along hedges, and amongst rocks, chiefly on gravelly or calcareous soils in the low country, never, I think, in the hilly upland districts. In several parts of the Isle of Wight, but very local. Sparingly betwixt Quarr Abbey and Fishbourne, near Quarr House, September, 1837, but I have not seen it there for years. It used to be plentiful in Undercliff, amongst the rocks behind Bonchurch, but the recent buildings have probably much diminished its frequency there. Frequent on hedge-banks betwixt Thorley and Wellond. By the road-side above Apse Heath. Along the road from Carisbrook to Buccombe, and about Carisbrook Castle and village, near the church. A few plants in the park at Swainston. Ruins of Quarr Abbey, near Ryde; Mr. Thomas Meehan, jun.!! In various parts of mainland Hants. Exceedingly abundant betwixt Cosham and Havant, lining the road on the north side for hundreds of yards between Drayton and Farlington, and continuing at intervals almost to Bedhampton. Plentiful within the huge area of Porchester Castle. Hedges near Exton, by Meonstoke, in considerable plenty, August 21st, 1849. Exton road; Rev. E. M. Sladen (probably the same station as the last). Extremely common betwixt Winton and Hursley; Mr. Wm. Whale! Old meadows at Mardon Castle, and in Hursley Park; Miss A. M. Yonge. Southampton road, beyond Titchfield, Mr. W. L. Notcutt; and unquestionably in many other places. *C. Nepeta* is very likely to be found within the limits of the Hampshire Flora, and should be looked for

in the same places with the present. I have gathered it in plenty on the rocks of the Castle Hill, at Hastings.

Calamintha sylvatica. In shady (always upland?) woods and thickets; very rare. Profusely in woods on the western side of a small valley betwixt Apes Down and Rowledge farms, about three miles W.S.W. of Newport, the only station at present known for this plant in Britain !!! For a full account of this species and its characters see Phytol. i. p. 768, ii. p. 49, and E. B. Suppl. iv. t. 2897. The most beautiful of all the British Labiatae, *Mellitis Melissophyllum* not excepted, but as remarked in the two works just quoted, it requires either the natural shelter of trees and bushes in its native habitats, or artificial protection from wind and other elemental vicissitudes to develop it in perfection. Some of my friends, who, contrary to my advice, have cultivated it in the open border alone, have expressed themselves disappointed in the beauty they were led to expect it would display, and have even thought they could trace its conversion into the common *C. officinalis*, but this is quite an error. Certain it is, that when raised in the open flower-border, the plant, even of the first generation, quickly becomes stunted in all its parts, the flowers shrink to little more than half their usual size, and become much deeper coloured and fewer in number, but in no instance does it lose any of the characters proper to the species, or assume those of *C. officinalis*. I have had it in constant cultivation since 1843, in St. John's garden, near this town, along with *C. officinalis*. The latter thrives luxuriantly in the most exposed part of the garden, as might be expected from its natural predilection for sunny, open exposures, whilst *C. sylvatica* as invariably languishes in proportion as it is removed from the sheltering influence of taller plants or shrubs, thriving at best but tolerably where such partial protection is afforded it. But when grown in pots and treated as an in-door or greenhouse perennial, few exotics of the order are more worthy of the care bestowed on it, as well for the extreme brilliancy of the large, delicately-tinted blossoms, as for the grateful odour of the herbage, like that of peppermint. My friend Dr. Salter has it constantly in his drawing-room window, and is very successful in its treatment, which indeed is very simple, the plant requiring only to be kept out of the wind or currents of air in a moderate temperature, as when thus sheltered the direct influence of the sun seems rather beneficial than injurious to its full development. In this way I have seen it form quite a bush, with long, leafy branches, more than two feet in length, crowded from

bottom to top with its many-flowered, unilateral cymes or clusters into one blooming raceme.*

Calamintha Acinos (*Thymus Acinos*). In dry, open, chalky, gravelly or sandy fields, fallows, and stony, hilly places. In the Isle of Wight, by no means uncommon. Near Ashey and Brading. Between Thorley and Shalcombe. Near Alum Bay. On Kennerley Heath, and in sandy fields about Newchurch, Bordwood and Queenbower. Abundant in very high, chalky fields above Sandown Bay, near the Culver Cliff. Fields near Bembridge Down; Mr. W. W. Saunders. About Carisbrook Castle and near Princelade (Princelet); Mr. W. D. Snooke in Fl. Vect. Frequent, I believe, throughout the county. About Winchester, in fields towards Chilcombe abundantly, and picked with white flowers. I have noticed it in a variety of other places in the county, and believe it to be so generally diffused as to render a list of stations unnecessary. Warnford; Rev. E. M. Sladen. Andover; Mr. Wm. Whale. The white-flowered variety, which I have gathered in the sandy ground below Queenbower, in this island, in some plenty, is a very pretty one, from the purity of the white blossoms, unmixed with any trace of the usual purple spots.

——— *Clinopodium* (*Clinopodium vulgare*). In woods, thickets, and bushy, hilly places, on banks, along hedges and borders of fields on a dry gravelly or calcareous soil; extremely common in most parts of the county and Isle of Wight. Common about Ryde, and abundant throughout the chalk districts both here and on the mainland of Hants. The structure of the corolla is exactly that of *C. sylvatica*, and the habit of the plant very similar. It may be doubted nevertheless, how far it is advisable to "lump" together genera so long recognized as *Calamintha*, *Clinopodium* and *Melissa*, as has been done by Mr. Bentham, or even to keep the two former only united, as we find in the Manual. When we have so extensive and truly natural an order to deal with as the Labiatae, we must be content with very artificial characters in forming the genera, otherwise the latter become unwieldy, and the determination of the species, unless by very exactly drawn up sectional divisions, troublesome and difficult. It were much to be wished that the mania for making new species, so prevalent amongst botanists of the Reichenbach school, could be induced rather to signalize itself in the construction of new genera, the amusement would be much more harmless, and the honour to be

* For a most interesting and faithful account of the habit of this plant and its cultivation by Dr. T. Bell Salter, see 'Phytologist' ii. p. 171.

gained not a whit less great. Mihi., Nob., Bab., or any other contraction significant of individual discriminative or creative acumen, would look just as well after a new genus as appended to a spick and span new species, with quite as fair a chance of surviving the attacks of time and controversy as many of the latter are likely to do in the end. We may tamper, if we please, with genera, which Nature hardly owns as of her appointing, but lightly, without grave consideration and careful experiment, to declare forms distinct which she has not separated by characters of unquestionable permanency, tends only to involve the study of plants in inextricable error and confusion.

‡ *Melissa officinalis*. Naturalized occasionally on dry banks and by streams in the county and Isle of Wight. It has been announced to me as growing in Sandy Lane, betwixt Whitecroft and Blackwater, near Newport, but I have failed to find it there. On a bank under a garden wall at Arreton, not a hundred yards from the church. In the wide area of Porchester Castle, in considerable quantity, but noticed in one spot only, apparently a very old station, 1848. Very sparingly by the stream-side below Selborne church, September 17th, 1848. I did not observe it again this year, but was at no pains to look very closely for it amongst the herbage, which perhaps concealed it from view.

Scutellaria galericulata. On the banks of rivers, streams and ditches, the shallow margins of ponds and swampy ground, and in wet woods and thickets. Not very frequent in the Isle of Wight. In various parts of Sandown Level, along the drains or ditches, and by the stream that flows through it towards Brading, called the East Yar; nowhere in any great plenty, but most abundant a little below Howingford Bridge. Near Rockley farm, sparingly. With stems quite weak and reclining, in a wet copse near Whitefield farm, about what was at one time a pool, called the Swan pond, now dried up. Near Ninham farm, by Ryde. Near Blackwater Mill, above Newport. At West Mill, between Newport and Carisbrook; Miss Dennet (ex icone). Apparently not very common on the mainland of the county. Short Heath, near Selborne. I have found it here and there in other parts of Hants, but have omitted to record the stations, and do not like to quote from memory. Near the Andover Marsh Gate, and in watery meadows at the bottom of Primrose Hill; Mr. Wm. Whale.

——— *minor*. In low, moist, heathy, boggy or muddy places, wet woods, sides of meadow-dains, ditches, and on damp tillage-land; not uncommon in the Isle of Wight, and I believe over the county generally. In Whitfield Wood, near Ryde. Frequent on many parts

of Lake Common. Extremely abundant on Apse Heath, growing even amongst potatoes on newly turned-up land, Oct. 2, 1839. Common about the foot of Bleak Down; around Lashmere Pond,* &c., 1843. In various parts of Sandown Level, and elsewhere in the island. Peaty bogs on Wolmer Forest, and if I remember well on Petersfield Heath. Path leading from Baddesley (from Otterbourne) across the (Cranbury ?) common; Miss A. M. Yonge. Hinton; Rev. E. M. Sladen.

Prunella vulgaris. A common plant everywhere in meadows, pastures, fields and hedges; by road-sides, in heathy ground, woods, thickets and waste places.

Nepeta Cataria. On gravelly and chalky banks, in waste places, along fences, hedges and road-sides, in dry situations; rare in the Isle of Wight, and I think unfrequent in the county generally. A plant or two close to the garden-gate at Truckles, near Ryde; Dr. T. Bell Salter: probably introduced originally !!! At Ventnor, by the Crab and Lobster, very sparingly (Dr. G. A. Martin !!!), and on a heap of stone rubbish a little to the east, below the road near Flint Cottage; Rev. G. E. Smith. Gravel-pit near Calbourne Bottom. Weston farm, Freshwater (a few plants just within the fence by the road-side); Mr. W. D. Snooke. Scome Tower; *Id.* In 1839 I found it in truly natural situations amongst brushwood on the rocks behind Bonchurch, in several places, but I doubt if it has escaped destruction from the recent buildings that now cover that once secluded spot. A plant or two by the road-side between Old Park and Mirables, 1844. Bridle road to Hursley, from Oliver's Battery, near Winton; Dr. A. D. White. Near to Wherwell, by the road-side, rather plentifully, and again by the side of the road to Enham, about half a mile from Andover; Mr. Wm. Whale! In the old London road, and near Walworth Gate (Andover), about half a score of plants in each place; *Id.*

—— *glechoma* (*Glech. hederacea.*). Abundant on hedge and ditch-banks, in damp gardens, orchards, woods, groves and other moist shady places. I found a variety with remarkably glabrous shining leaves, and very deep blue flowers, in the Duke of Wellington's park at Strathfieldsaye, in May last, — the result possibly of excessive shade and humidity.

* This pond, properly Leechmere, from the number of officinal leeches it supplied to the surgeons and druggists of Newport, is now all but drained, and many of the plants that flourished there have disappeared in consequence.

Melittis Melissophyllum. Under bushes in dampish, shady woods and copses, chiefly, if not exclusively, in the southern part of the county, and not common there. Unknown in the Isle of Wight. In West Wood, close by Netley Abbey, where I have gathered it in plenty about fifteen years ago. Avington Wood; Dr. A. D. White, where I saw it, accompanied by the doctor for my guide, in considerable abundance last year. I believe it grows also in Armfield Wood, a few miles from Winchester. In the New Forest; Hudson. Probably tolerably frequent in the woods of south Hants, but I have not yet ascertained its distribution. This and *Calamintha sylvatica* are the two finest of our British labiates. The flowers vary much in colour, and are sometimes nearly white, as at Avington, where they were extremely pale, whilst at Netley the blossoms were deeply coloured, as Curtis paints them in 'Flora Londinensis.' The fresh plant has the weedy, unpleasant smell of the tribe (*Stachydeæ*) to which it belongs; when dried for the herbarium it becomes, on the contrary, eminently fragrant, like woodruff or new hay.

Lamium amplexicaule. In dry sandy or chalky fields, waste and cultivated ground, gardens, fallows, about dunghills, &c., not unfrequent, but scarcely to be called very common with us, at least in the Isle of Wight. Ryde, at Quarr Abbey, and elsewhere, occasionally. More frequent on the greensand, about Sandown, Lake and Shanklin. Frequent in sandy fields about Newchurch. Plentiful in a field near Bordwood farm, 1843, and generally dispersed over the island and county. Wolmer Forest, &c.

—— *incisum*. In waste and cultivated ground occasionally, but not common, and I am strongly disposed to believe it only a variety of *L. purpureum*. Amongst turnips in a field at Nettleston Green, December, 1838. About Shanklin in several places, 1843. Fields near Shanklin; Mr. Wm. Wilson Saunders!!!

—— *intermedium*. In similar places with the last; very rare? Gathered May 27th, 1845, in some plenty, on sandy hedge-banks in a lane betwixt Marvel Wood and Whitecroft, near Newport, in this island, and at the time supposed to be a form of *L. incisum*, as appears by the label inscribed "*L. incisum* (an verum?)," with the following remark beneath: "The leaves are somewhat greener or less hoary and hirsute, and less wrinkled than in *L. purpureum*, and the ring of hairs in the tube of the corolla is nearly or quite wanting." Careful comparison with figures and descriptions from various authentic sources, has convinced me that my Isle-of-Wight plant is the *L. intermedium* of Fries, a species frequent in the north-western parts of

the kingdom (Scotland and Ireland), but not hitherto recorded as found in the south of England.* My specimens well agree with the beautiful figure in E. B. Supplement, iv. t. 2941, and with Reichenbach's in Iconogr. Bot. viii. t. 722, fig. 964, a vast improvement on his miserable former one in vol. iii. t. 224, fig. 372. As it presents itself in this island the plant bears most resemblance to *L. incisum*, but my specimens are far larger than those I possess of the latter, being eighteen inches or more in length. It also agrees with *L. incisum* in the size of the flowers, which are less exerted than in *L. amplexicaule*, to which, as well as to *L. purpureum*, it likewise has much resemblance. The uppermost or floral leaves are less crowded than in any of the other three, and in the size, form, and depth of the serratures come much the nearest to *L. amplexicaule*, but differ in being for the most part distinctly sub-cuneate at base, or narrowed into an evident foot-stalk. Our plant is also greener and less hairy than any of its three allies, and the calyx segments, as far as can be seen in their rather too early flowering state, agree with the descriptions in being longer than the tube of the corolla. The strongly pressed and mostly but half-opened flowers preclude an examination of the toothing of the lateral lobes of the lower lip. As the plant is accounted specifically distinct by many leading botanists in Britain and on the continent, I bow to their decision, but I may be permitted to observe, that the only tolerable characters assigned to it are rather differences of degree than of positive structure, and therefore of very inferior value. I should say that *L. intermedium* was a variety, and but a slight one, of *L. incisum*, and this latter but doubtfully distinct itself from *L. purpureum*. Let any one compare the two first together, and collate Mr. Babington's description of each in the Manual; he will find, I fear, very little in either to satisfy him of their specific distinction. The only *absolute* character, if it can be so called, that I can extract from the Manual for distinguishing *L. intermedium* from *L. incisum* is, that the lateral lobes of the lower lip in the one are furnished with a *small*, in the other with a *strong* tooth. The wedge-shaped attenuation of the leaves (at most but partial), and the presence or absence of the "faint ring of hairs" within the tube, are reciprocal and variable in both. I quite agree with Mr. Babington, when he says (speaking of *L. intermedium* in the Supplement to E. B.), "However difficult it may be to distinguish these plants upon paper, no one can see *L. intermedium* without being struck by its very different

* I think it has occurred to the Rev. W. A. Leighton, in Shropshire.

appearance; and indeed each of the four plants now mentioned is known at a glance by all who have been accustomed to see them in their native places." But I think botanists are standing on slippery ground when they assume a marked difference of aspect as a reason for adopting weak or variable specific characters. Every tolerably distinct variety of a plant is readily known from its type by some peculiarity of aspect, and certain differences of structure, although probably only of degree, must be present to impart such peculiarity of appearance; yet as a general rule, we never dream of making "habit" a reason for justifying a separation from the typical state of the species, unless we can establish for the variety some better claim to disjunction based on permanent deviations, or what appear *constantly* to be such, in some organ or organs of importance, from the normal or more usual condition under which the plant presents itself. Yet I fear that in our zeal for establishing a new species we too often permit a difference of habit to be a warrant for our precipitancy, and to serve as a make-weight in the absence of more solid and tangible characters. I confess to an exclusive partiality for good broad characters in species, and hold that a plant which is not readily distinguishable "on paper" is not likely to be much more so in the field or the herbarium.

The floral leaves of my specimens of *L. intermedium* are all spreading, not deflexed, as in *L. purpureum* and *L. incisum*, and are far less hairy than in these; the verticillasters are quite distinct, as in *L. amplexicaule*, but not so remote, the stem very copiously branched at base, and in other respects well according with the description of Fries (Novit. p. 192), the author of the species. The leaves in my plant, however, are not strictly reniform-cordate, but rather cordate, like those of *L. purpureum* and *L. incisum*, only deeply and coarsely incised, as in *L. amplexicaule*, the calyx-teeth rigid and spreading, not connivent or rather erect, as in that, after flowering.

Lamium purpureum. In cultivated and waste ground, gardens, fallows, on ditch and hedge-banks, walls, and in grassy places, everywhere abundant. Var. β . Flowers white, or nearly so. On a hedge-bank at Fishbourne, near Ryde.

——— *album.* On hedge-banks and walls, in waste ground, the grassy borders of fields, and amongst rubbish; very frequent, and widely dispersed over the county and island, but often rare or even wanting in certain limited districts or particular localities. A decidedly unfrequent plant about Ryde, at Binstead and elsewhere, occasionally. More common on the greensand, as about Shanklin.

Extremely common about Newchurch in waste ground and hedge-rows. Plentiful betwixt Newport and Carisbrook, and along the road from thence to Shorwell, where I gathered it having the flowers faintly tinged with red on the back of the upper lip of the corolla. At East Cowes, at the top of the new plantations, and in many other parts of the island abundantly.

Lamium Galeobdolon (*Galeob. luteum*). In moist, shady places, woods, groves and under hedges; plentifully in various parts of the Isle of Wight. Most abundantly in all the woods about Shanklin, Luccombe and Bonchurch. At Apse Castle, Appuldurcombe, Steep-hill, and in the Undercliff generally. About Cowes, Newport, Ryde, Gatecomb, and many other places, the tawny spotted flowers of the yellow archangel are seen mingling profusely with the blue bells of the wild hyacinth, and the white starry blossoms of the bear's garlick, in our shady woods, while they are amongst the earliest of Flora's gladsome train to enliven the spring. Common, I believe, over the entire county, but I have not noted its distribution with attention. In the beech-hangers at Buriton, near Petersfield, and I have remarked it in other places. Andover; Mr. Wm. Whale.

†*Leonurus Cardiaca*.* In hedges and waste places, about fences, and by road-sides; very rare in Hampshire, and probably not indigenous. Unknown, as yet, in the Isle of Wight. Hedge on Otterbourne Hill; Miss A. Yonge!!! Half a mile from Upham, on the road to Durley, on a high bank on the left hand going to Durley;

* Many wild plants once popular as articles of diet or medicine have long outlived their uses, and even the memory of them amongst us, as I have instanced in the Alexanders (*Smyrniium Olusatrum*). Others still preserve their credit as "yerbs" of great efficacy amongst rural practitioners of the empiric class, such as centaury, bear's-foot (*Helleborus foetidus*), five-fingered grass (*Potentilla reptans*), &c.; and I was lately applied to on behalf of a young woman to know where in this island she could obtain a supply of "Arabacca" (evidently Asarabacca, *Asarum europæum*), which she had been ordered to take by an itinerant quack, I know not for what complaint, and directed by him to look for in the woods as "a plant with round leaves, like coltsfoot." The poor girl might have looked long enough before she found the remedy she was in search of, a proof, too, this, of the ignorance and presumption of these "herb-doctors," who go about the country extracting from the pockets of their indigent and credulous patients their hard earnings, and directing them the use of remedies unsafe to tamper with from their potency, or even impossible to be procured, as in the case just cited. Dr. Salter and myself were not long since accosted by a person on Wolmer Forest, with a request that we would step to his house hard by, and tell him the name and nature of a plant that had puzzled all the wise heads in the neighbourhood, and transcended, he told us, the lore of a professed and experienced herbalist of Petersfield, who had never seen anything like it till then. The plant turned out to be the

Dr. A. D. White. Sought for there in vain, July, 1849, the plant is certainly extinct. In the former of these stations it grows in considerable plenty, but very near some cottages. I strongly suspect this plant is not an aboriginal in any part of the kingdom, or even of Europe, but to be of more eastern origin. I have never seen it in this country or on the continent in any place where it was not likely to have been introduced, generally close to houses or buildings of some kind, and in no instance remote from the haunts of man. The genus has its metropolis in Asia, especially Siberia, and I am inclined to think the motherwort may have migrated westward with the nomadic tribes that overran eastern Europe at the downfall of the Greek empire. I have never met with this plant cultivated in rustic gardens, like some others of former repute in medicine, nor can I find that the motherwort is known by that or any other name amongst the herb-doctors or the good women of this part at least of the realm.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
September 12, 1849.

(To be continued.)

BOTANICAL SOCIETY OF LONDON.

Friday, September 7, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

British plants from Dr. Mateer, Mr. John Tatham, Mr. Henry Fordham, Mr. J. B. French, Mr. Thomas Moore, Mr. Robert Withers, Miss A. M. Barnard, and Mr. T. C. Heysham.

Mr. C. C. Babington presented specimens of *Rubus pyramidalis* (*Bab.*) and *Rubus incurvatus* (*Bab.*), collected by him at Llanberis, North Wales, in September, 1848. (These specimens were sent in April last, but had remained at the Linnean Society, in a parcel addressed to a Fellow, who did not happen to call there until some months afterwards).

birthwort (*Aristolochia Clematitis*), which we were informed grows in plenty on a hedge-bank at Borden Lodge, on the Forest, doubtless naturalized, as it is near Winchester; in both places it has probably existed beyond the memory of man, and has become, in the latter station at least, an unconquerable weed, but its remedial uses, together with its very name, have no memorials left them in the pharmacopœia of our rustic Galens.

Specimens of *Odontites verna* and *Odontites verna*, var. *elegans*, were exhibited from Mr. John Ball, in illustration of the plants described by him in the 'Botanical Gazette' for September.

A paper was read from Mr. W. H. Coleman "On the plants indigenous to the Neighbourhood of Horsham, Sussex."—*G. E. D.*

Notice of 'Cybele Britannica; or British Plants and their Geographical Relations. By HEWETT COTTRELL WATSON. Vol. II. London: Longman and Co. 1849.'

THE second volume of 'Cybele Britannica' has just issued from the press: it presents no new feature, being simply a continuation of the first, and proceeding regularly with the orders, from Loranthaceæ to Alismaceæ inclusive. The author proposes to prepare a third volume for the press in 1850 or 1851; and in order to make the work as complete and useful as possible, in the light of a condensed arrangement of facts, Mr. Watson earnestly recommends that competent botanists will make public through the periodicals, or communicate to himself, any information which may tend to fill up deficiencies, remedy defects, or correct errors, in either of the earlier volumes.

"The Orders which still remain to be treated in the third volume, are the two heterogenous assemblages of Fluviales and Araceæ, as these stand in the 'London Catalogue of British Plants,' together with Restiaceæ, Juncaceæ, Cyperaceæ, Gramina, Filices, and Pteridioides; the last mixed group including *Lycopodium*, *Isoetes*, *Pilularia*, and *Equisetum*. Taken together, these orders include upwards of three hundred species, that is, rather less than half the number treated in the present volume."—p. iv.

But with the addenda to be made to the orders previously published, this third volume will probably equal in size those which have preceded it.

In our notice of the first volume of this important and really laborious work, we fully explained its object and plan, quoting largely from the author's own pages: on the present occasion we shall do no more than make a few extracts from the text, in order to exhibit the author's mode of treating plants differently circumstanced.

In the first place we will select a plant distributed throughout Britain, from the extreme south to the extreme north, and from the sea level to the mountain tops.

“ 517. *GALIUM SAXATILE*, *Linn.*

- “ Area general.
- “ South limit in Cornwall, Isle of Wight, Kent.
- “ North limit in Shetland, Orkney, Hebrides.
- “ Estimate of provinces 18. Estimate of counties 82.
- “ Latitude 50—61. British type of distribution.
- “ A. A. regions. Inferagrarian—Superarctic zones.
- “ Descends to the coast level, in the Peninsula.
- “ Ascends to 1250 yards, in West Highlands.
- “ Range of mean annual temperature 52—34.
- “ Native. Ericetal. One of the most universally distributed species in Britain, except that it has been banished from large tracts by the farmer and gardener.”—p. 16.

As an example of a species equally widely distributed with *Galium saxatile* over a horizontal area, but the upper limits of which are more determinate, and require to be set forth more in detail, we will cite the common Ling (*Calluna vulgaris*).

“ 695. *CALLUNA VULGARIS*, *Salisb.*

- “ Area general.
- “ South limit in Cornwall, Isle of Wight, Kent.
- “ North limit in Shetland, Orkney, Hebrides.
- “ Estimate of provinces 18. Estimate of counties 82.
- “ Latitude 50—61. British type of distribution.
- “ A. A. regions. Inferagrarian—Midarctic zones.
- “ Descends to the coast level, in the Peninsula.
- “ Ascends to 1100 yards, in East Highlands.
- “ Range of mean annual temperature, 52—36.
- “ Native. Ericetal. I have authority for the existence of this well-known shrub in every county of Britain, with the exception of Berks, Bucks, Northampton, Radnor, Montgomery, Flint, Lincoln, Ayr, Haddington, and Linlithgow; and in half of these ten counties I have probably seen it myself. The upper line runs from 900 to 1100 yards, in the West of Aberdeenshire; on and near Ben Lawers, in Perthshire, so low as 750 to 900 yards; about Drumochter Forest, in the counties of Perth and Inverness, from 900 to 950 yards; on and about Ben Nevis, from 750 to nearly 900 yards; about 800 yards in the north-west of Sutherland. Mr. A. Petermann gives me the altitudes of 2334 and 2328 feet, on Stob Choressan and Sgur Ghaoire, two mountains near Ben Nevis.”—p. 150.

Linnæa borealis, a plant interesting to all botanists on account of its name,—the chosen symbol of the ‘Phytologist,’—and, moreover, a species so restricted in its distribution as to excite interest on that score also,—is thus treated.

“ 511. LINNÆA BOREALIS, *Gronov.*

“ Area * * * * * 11 * * 14 15 * 17.

“ South limit in Northumberland or Berwickshire.

“ North limit in Ross, Moray, Banff, Aberdeen.

“ Estimate of provinces 4. Estimate of counties 10.

“ Latitude 55—58. Scottish type of distribution.

“ A. A. regions. Midagrarian—Midarctic zones.

“ Descends to a moderate altitude, say 100 yards.

“ Ascends to 800 or 850 yards, in East Highlands.

“ Range of mean annual temperature, 46—38.

“ Native. Sylvestral. This little plant, so much a favorite with botanists, has been found in the counties of Northumberland, Berwick, Edinburgh, Perth, Forfar, Kincardine, Aberdeen, Banff, Moray, and Ross, and to these ten, perhaps, it might not have been deemed too hasty to make an addition, by setting down the estimate at 12. Apparently absent from the western side of Scotland; and unknown in England, except for the single locality ‘in a plantation of Scotch Firs, at Catcherside, in the parish of Hartburn’ (Miss Emma Trevelyan, in Hook. Brit. Flo.); on the genuine nativity of which a doubt has been thrown, because the trees are said to have been brought from Norway: was this the fact?”—p. 11.

Erica ciliaris, a very local species, gives occasion for the introduction of various memoranda and notices, descriptive and historical. We cite the author’s remarks entire.

“ 691. ERICA CILIARIS, *Linn.*

“ Area 1 2 [3].

“ South limit in Cornwall.

“ North limit in Dorset.

“ Estimate of provinces 2. Estimate of counties 2.

“ Latitude 50—51. Atlantic type of distribution.

“ Agrarian region. Inferagrarian zone.

“ Descends to the coast level, in the Peninsula.

“ Ascends to 50 yards, more or less.

“ Range of mean annual temperature 52—51.

“ Native. Ericetal. Peculiar to the two counties above mentioned, as far as hitherto ascertained; having been first introduced into the British Floras some twenty years ago, when it was sent to Sir W. J. Hooker instead of *E. vagans*, by the late Rev. J. Tozer, who had been applied to for the latter, and consequently looked out for some *Erica* different from *Tetralix* and *cinerea*. The localities in Cornwall are variously described, but are all of them about Penryn, Truro, and St. Agnes. The Dorset locality extends, according to Dr. Salter, ‘throughout nearly the whole space from Arne to Corfe, a distance of fully four miles.’ The curiously intermediate links between this and *E. Tetralix*, one of which is described by Bentham as a variety (*‘Watsoni,’* DC. Prodr.) of *E. ciliaris*, are probably hybrid varieties. At one end of the series, they are barely distinguishable from *E. Tetralix*, by the slightly larger and ventricose corollas; while, at the opposite extremity, they pass into *E. ciliaris* almost imperceptibly. It is thus optional to place them as varieties, under either or both of the two species. I found numerous plants, and thus obtained a series of the forms, on a heath near Truro, which was then (1831) in process of enclosure; and looking at the map, I think it must have been on the road towards Redruth; but I was an utter stranger to Truro at the time, and was strolling along whither chance might lead. The Rev. C. A. Johns has recently given me a living plant, raised from cuttings of *E. Watsoni*, but not exactly the form described by Bentham, taken from a single shrub of it which was found by Mr. Borrer (in 1847?) ‘on the right hand side of the lane which leads from the Foundry at Perran to the plantation in which *E. ciliaris* grows so abundantly.’ It is highly probable that *E. ciliaris* had been really known as a native many years ago, but again lost sight of until re-discovered by Mr. Tozer. In Curtis’s Botanical Magazine, t. 484, it is remarked of this Heath: ‘C. Bauhin, mistakenly, calls it *anglica*, which has given rise to the idea of its being an English plant, but it is not. I have a specimen of true *E. ciliaris*, obtained by Mr. John Ellis from a garden shrub, which, he was informed, had been transplanted from a common near Farnham, in Surrey. It is probable that there was some mistake about the individual shrub, for *E. ciliaris* is killed down by very severe winters, in my own garden, in the same county; and it would therefore seem to require a milder climate for its natural habitat.”—p. 149.

We will next give an example of Mr. Watson’s mode of treating a familiar species, the distribution of which has been rendered obscure

through the mystification of modern commentators, and consequent misapplication or crossing of names.

“847. MYOSOTIS PALUSTRIS, *Linn.*

“Area 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 * [17 18.]

“South limit in Cornwall, Isle of Wight, Kent.

“North limit in Forfar, Perth, — ?

“Estimate of provinces 16. Estimate of counties 75.

“Latitude 50—57 (58). British type of distribution.

“Agrarian region. Inferagrarian—Midagrarian zones.

“Descends to the coast level, in the Peninsula.

“Ascends to 100 or 200 yards, in England.

“Range of mean annual temperature 52—47.

“Native. Paludal. Three species, as they are now held to be, were formerly included under this name by British botanists. In consequence, doubts will arise in many cases to which of those three species the name has been applied by individual authors. According to my own opportunities for observation, the true *M. palustris*, or that described as such in Hooker’s British Flora and Babington’s Manual, has the most restricted geographical range in Britain; and though probably the commonest of the three in the southern provinces and lower agrarian zone, yet it appears to become the most rare in the northern provinces and upper agrarian zone, if found at all in this latter zone, which it is not satisfactorily ascertained to be. In the Flora of Shetland, *M. palustris* and *M. cæspitosa* are enumerated; but there seems good reason to infer that the former name really intends the species *M. repens*. In the Catalogue of Hebridean plants, we find *M. repens* and *M. cæspitosa*, without *M. palustris*. In the Orkney Catalogue and Moray Flora, *M. palustris* is the only species, or only name, mentioned; and likely enough it there stands for the two species enumerated among the plants of the Hebrides. In Murray’s Northern Flora, *M. palustris* and *M. secunda* are the two names used; but the descriptions here come in to assist us, and they show sufficiently well that the former name means the species *M. cæspitosa*, while the latter name is a synonym for *M. repens*. In the Flora Abredonensis, *M. palustris* and *M. cæspitosa* are enumerated; the former name probably intending the species *M. repens*, and the latter being applied correctly. In the Flora of Forfarshire, all the three species and names are included. I have collected the three species myself in Perthshire; but only *M. repens* and *M. cæspitosa* to the north of the Grampians. Still, it cannot be deemed unlikely that the

true *M. palustris* will be found up to the North Highland province, in the low grounds. Dr. Dickie gives 1200 feet as the altitudinal limit of *M. palustris* in Aberdeenshire, probably intending *M. repens*. I have myself met with *M. palustris* in low situations only.”—p. 269.

Convallaria bifolia affords a good example of the author’s mode of dealing with a species the nativity of which in Britain requires confirmation, and we may add that there are many which come under this category.

“1098. *CONVALLARIA BIFOLIA*, *Linn.*

“Area [3 4 * * * * 9 * 11].

“Incognit or Alien. This was lately announced to British botanists as having been discovered wild or naturalized in the woods at Howick, Northumberland. Subsequently, the alleged habitat was visited by Mr. Borrer, who reported in the *Phytologist*, ii. 432, that ‘the plant has been completely extirpated at Howick. The spot was close by Earl Grey’s garden.’ It is very much to be wished that real botanists would not only discountenance, but also treat with public reprobation, every attempt to pass off the accidental finding of stray garden plants as a discovery and addition to British botany. And it is equally to be wished that Mr. Borrer would more frequently afford us the benefit of his own experience and judgment, openly and boldly expressed, after visiting the spot of any announced discovery; which, it is understood, he so regularly makes a point of doing. To the store of practical experience that must have been thus acquired, Mr. Borrer adds also other important qualifications, which altogether ought to give to his opinion more value and weight than could be accorded to the opinions of any other British botanist, in reference to questions bearing on the nativity of newly-discovered plants, and the genuine character of localities for local or novel species. The announcement of *Convallaria bifolia* being found in Northumberland, for which there seemed no geographic improbability, resuscitated the overlooked fact of its occurrence in Lancashire, ‘in Dingley Wood, six miles from Preston, in Aulderness, and in Harwood, near Blackburn, likewise,’ having been recorded long since by Gerard. And Mr. Edward Edwards afterwards stated in the *Phytologist*, i. 579, that the same species had been reported indigenous in the woods at Hampstead, in Middlesex, in Park’s ‘History of Hampstead;’ and that he had himself, ‘in 1835, detected several patches of the plant, apparently well established and really wild, under the shade of fir trees, growing near

the highest parts of Caen Wood, between Hampstead and Highgate ; likewise, that he had found it, a year or two previously, under ‘fir trees in Apsley Wood, Bedfordshire.’ The only doubt which arises in respect to these two last-mentioned counties, is, that Mr. Edwards may possibly have mistaken some other plant for the *Convallaria bifolia*, and more particularly as he writes on the recollection of several years back.”—p. 465.

Finally, *Anacharis alsinastrum*, the *Udora verticillata* of the Phytologist, and first made known to the botanical world of this country through the medium of its pages ; and the almost simultaneous discovery of which in different and distant localities is remarkably interesting, affords us a good opportunity of showing how Mr. Watson has brought down his information to the last hour of going to press : in this particular, and apart from all its higher merits, the ‘*Cybele Britannica*’ must ever be considered a model publication : it would be difficult indeed to point out a trustworthy record of the occurrence of a rare species in Britain that the author has overlooked or failed to cite.

“1108.* *ANACHARIS ALSINASTRUM*, *Bab.*

“Area * 2 * 4 5 * * 8 * * * * 14.

“South limit in Hants, Northampton, Stafford.

“North limit in Edinburgh, Berwick.

“Estimate of provinces — ? Estimate of counties — ?

“Latitude 52 (50)—56. Uncertain type of distribution.

“Agrarian region. Inferagrarian—Midagrarian zones.

“Descends to the coast level, or nearly so.

“Ascends to 100 yards, less or more, in East Lowlands.

“Range of mean annual temperature 49—47.

“Denizen. Lacustral. First announced as a British plant about the close of 1847, under name of *Udora verticillata*. Doubts were soon suggested respecting its nativity in Britain, from the circumstance of its being shortly afterwards observed in ponds, to which it might possibly, and even not improbably, have been introduced from America. Mr. Borrer found it in a pond in Leigh Park, near Havant, in the south-east of Hants, which is the most distrusted locality for it in England. Mr. Kirk (Phytol. iii. 389) observed it abundantly in the reservoirs at Watford Locks, ‘on the same line of canal as Foxton Locks,’ in Leicestershire. The reservoirs at Foxton Locks, near

Market Harborough, were the original habitat, in which it was discovered by Miss Kirby, and subsequently gathered plentifully by the Rev. A. Bloxam. Dr. James Mitchell has found it in the river Leen, and in the ditches of adjacent meadows, near Nottingham, ‘certainly not introduced.’ (Bot. Gaz. i. 26). Dr. G. Johnston appears to have been the first botanist who gathered the plant in this country, in the neighbourhood of Berwick-on-Tweed. (Proceedings Berw. Nat. Club; and Phytol. iii. 540). Mr. C. C. Babington informs me that it has been also found in Duddingston Lock, near Edinburgh, by Professor Balfour. In Staffordshire, according to Mr. Edwin Brown, in Phytologist, iii. 647.”—p. 474.

Notwithstanding the pains which Mr. Watson has taken to arrange species under distinct heads as regards their claim to be considered truly indigenous; notwithstanding, moreover, the lucid manner in which the various terms of Native, Denizen, Colonist and Alien are defined; still it appears to us that these boundaries are rather drawn too closely, and that Nature herself is destined to overleap them. If we take, for instance, *Mimulus luteus*, of transatlantic origin, and observe how in a variety of distant localities it is extending and establishing itself; if we reflect on the extreme improbability of its ever being exterminated, we shall be willing to excuse the unborn author of a future *Cybele* who shall define it as Mr. Watson does the group of ‘denizens’ to which the sweet violet is now referred. “At present maintaining its habitats, as if a native, without the aid of man, yet liable to some suspicion of having been originally introduced.” Thus there is not only a possibility, but a probability, that a species shall advance with time from the station of ‘alien’ to that of ‘denizen,’ and perhaps a ‘denizen’ such, for instance, as the sweet violet, may take on its honoured, but unobtrusive presence, the title of ‘native:’ or looking back on the past, instead of forward into the future, may not the daisy have once been a ‘denizen,’ or still earlier an ‘alien,’ although it now seems so thoroughly established as part and parcel of the virgin turf!

K.

Attempt to characterize an apparently undescribed Species of Lastrea. By EDWARD NEWMAN.

IN describing *Lastrea spinosa* I have said "This fern is closely allied to the preceding (*L. cristata*), and so much do they resemble each other that I have found it next to impossible to fix on satisfactory diagnostics whereby to distinguish them." In fact, in the splendid series of *L. cristata* received by the Botanical Society from Bawsey Heath, there were specimens which I found myself unable to refer with confidence to either species. About the same time I received from the Rev. Geo. Pinder specimens of a very singular fern, from Wybunbury bog, in Cheshire: these I referred, without much hesitation, to *Lastrea spinosa*: the Cheshire and Norfolk specimens were so exceedingly dissimilar in general appearance, that it never occurred to me to compare them together with a view of ascertaining whether they possessed any characters in common.

Early in August last, Mr. Lloyd, a gardener who has paid great attention to the British ferns, brought me a plant, well established in a pot, of a fern which he considered new to Britain: he had previously shown it to several eminent botanists, and especially those who have paid attention to ferns: others have seen it since it has been in my possession, and although I refrain from giving the names of six gentlemen who have expressed opinions, however confidently, yet not intended for publication, I may perhaps be allowed to record the opinions without the names. I should premise that the plant is in perfect vigour, in full fructification, and without any symptom of disease or malformation: these six gentlemen have pronounced it—

1. A form of *Filix-mas*.
2. *Lastrea rigida*.
3. *Lastrea cristata*.
4. *Lastrea spinosa*, a strong variety.
5. *Lastrea dilatata*, a rigid variety.
6. No way different from *Lastrea spinosa*, *Newm.*, I mean, it would hardly pass for a *var*.

It is singular, that out of six high authorities no two entertain the same opinion. The plant which has elicited such conflicting opinions has fronds resembling those received both from Bawsey and Wybunbury, and therefore establishes the specific identity of those very dissimilar forms. I attempt to describe both under the name of

Lastrea uliginosa.

Rhizoma tufted.

Habit erect, rigid : arrangement of fronds shuttlecock-fashion, or spreading from a common centre.

Normal form.—*Fronds* of the normal form, linear, elongato-acuminate at the apex, thirty inches long, five inches wide : their vernation simple, not twisted.

Rachis deeply grooved in front, flattened at the sides, rounded behind, glabrous, bright green above, purple at base, slightly tinged with purple at the back : its stipes or naked portion nine inches in length : scales somewhat sparingly distributed, obtusely ovate, with a lengthened acute apex, which is generally twisted, and which terminates in a setaceous point ; pale brown, transparent, concolorous : these larger scales are intermixed with others very slender and hair-like : all the scales readily fall off, leaving small black scars on the stipes.

Pinnæ elongato-deltoid, with acuminate deflexed apices and winged midrib, the 1st, 2nd, and perhaps 3rd pair rather shorter and rather broader at base than the 4th, 5th, and 6th pairs, and hence rather more deltoid ; set on the rachis rather obliquely, so that their upper surface approaches a horizontal position, although the frond is nearly erect.

Pinnules of moderate size, sessile, adnate, deeply notched, the divisions serrated, the serratures aristate : 1st inferior pinnule longer than first superior.

Clusters of capsules on all the pinnæ, but less abundant on the lower ones, relatively small, remaining distinct and separate except at the apex of the frond, at first green, then white, subsequently black, and finally bright brown ; the green colour is due to the frond seen through the young and perfectly transparent involucre ; the white colour is due to the involucre, which becomes opaque and white ; the black colour, to the ripe and full capsules ; and the brown, to the empty capsules and elastic rings.

Involucre regularly reniform, its margin very entire, its disk and margin eglandulose.

Abnormal form.—*Fronds* narrower, thirty-four inches long, four-and three-quarter inches wide : less rigid than the normal form.

Pinnæ very distant, very narrow, acuminate, with winged midrib.

Pinnules very small, very distant, sessile, adnate, deeply notched, rather obtuse at the apex.

Fronds of this character have a very peculiar and starved appear-

ance, but exhibit the adnate attachment of the pinnules very conspicuously.

Barren Frond. The earlier fronds of the season, together with some of the later ones rising from the lateral crowns, are perfectly without fructification: they are shorter and broader, and the pinnæ are longer, broader, and more crowded than in the normal fertile fronds. The marked difference and permanent distinctness between the fertile and barren fronds is a character common to *Lastrea Thelypteris*, *L. cristata* and *Allosorus crispus*, but does not obtain in the generality of species, all the fronds having, in a very great majority of instances, a tendency to produce fructification, although adventitious circumstances of situation, temperature, soil, &c., may cause an increase or diminution of the quantity of seed produced.

Affinities to *Lastrea cristata* and *L. spinosa*. It resembles *cristata* in veneration and adnate pinnules: it resembles *spinosa* in the figure, notching and aristation of the pinnules: it resembles both in its erect, rigid habit, and ovate, diaphanous, concolorous scales, and also in its entire, eglandulose involucre.

Diagnosis. It differs from *L. cristata* in the more acuminate, more divided, more serrated, more aristate pinnules, also in the more direct course of the veins, a difference much more easily observed than described: it differs from *L. spinosa* in the adnate, decurrent pinnules, in the tufted rhizoma and consequent regular habit of growth, and in the simple veneration: it differs from both these species in the more equal distribution of the clusters of capsules over all parts of the frond.

Habitat. This fern occurs only in wet, marshy situations, or on moist heaths. Wybunbury bogs, Cheshire: Oxtun bogs, Nottinghamshire: Bawsey Heath, Norfolk.

Cultivation. It grows freely in cultivation, retaining all the characters which distinguish it as a wild plant: in the spring it is twenty days later than *L. multiflora* in expanding, ten days later than *L. spinosa*, and ten to fifteen days earlier than *L. cristata*.

In offering these observations to the notice of British botanists, I am perfectly aware that I lay myself open to the charge of species-making. I hope, however, that the candour of my readers generally will appreciate the attempt more justly: they will perhaps bear in mind that I have not hitherto been guilty of adding a single specific name to our list of British ferns.

EDWARD NEWMAN.

London, September 27, 1849.

Notice of Leersia oryzoides in Hampshire.

By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

SUCH readers of the 'Phytologist' as interest themselves in the geographical distribution of our native plants, will doubtless feel pleasure in learning that the hitherto rare and local grass,* *Leersia oryzoides*, extends its range into the western part of this county. On the 27th of September, I detected it in very moderate quantity in the Boldre River at Brockenhurst Bridge, in the New Forest, growing amongst rushes, in company with *Isnardia palustris*, in two places; in one of which, immediately below the railing on the left side of the road going from Brockenhurst to Lyndhurst, it must have been more than once under my eye, as I had previously collected specimens of *Isnardia* within a foot of the *Leersia* itself, which it is probable would again have been passed unnoticed by me, had I not a fortnight before gathered the grass in its third Sussex station, in the Arun at Amberley and Bury, four miles north of Arundel, and hence familiarized myself with the aspect of the plant in the occult form in which it usually presents itself to observation in this country. As I was at the moment of finding it awaiting the down train to Ringwood, time did not allow of an attempt to trace the *Leersia* higher or lower along the stream, but on the 7th of October, returning to Lymington, I detected it in somewhat greater quantity amongst reeds on the margin of the same river, nearly under the timber railway-viaduct that crosses the stream a short distance above Brockenhurst Mill, and about half a mile below the first station at Brockenhurst Bridge. Continuing the search, I found it in a broad ditch a little lower down than the mill, just where the Boldre River enters by a weir the precincts of Watcomb and Brockenhurst Parks, growing in two or three scattered and isolated tufts of moderate size, but still not abundantly. The barren exerted portion of the panicle had in every instance fallen away entirely, but the sheaths were inflated by the concealed part, bearing plenty of ripe seed, and the specimens beneath the railway-viaduct were the largest and tallest I have seen of English growth. I can scarcely doubt that this most curious grass exists in the upper part of the Boldre River, and probably in greater plenty, and that it will be found in many of our Hampshire streams and pools between this station and the original Sussex habitats.

* It has lately been ascertained to abound in several and distant localities in Sussex, since its first discovery in that county a few years back by Mr. Borrer.

As *Leersia oryzoides* is a grass of no easy detection in this country, from the tendency the inflorescence has to remain concealed in the sheaths of the leaves, and from the general aspect and habit of the plant possessing but little by which to distinguish it at sight from other marsh grasses, both which concurred in keeping it so long unknown as a native production; some notice of its habits and peculiarities may be useful in facilitating its discovery in other parts of the kingdom,* by those whom, without such a guide, the best descriptions, plates, and even dried specimens could hardly enable, until habituated by practice, to recognize it in its native marshes.

The localities affected by the Cutgrass are shallow ditches, drains of water-meadows, and the reedy or grassy margins of rivers, brooks and pools.† It seems to evince a partiality, both here and on the continent, for mill-dams,‡ doubtless because the water is tranquil and the supply constant; and in most of the English stations it grows associated with the common reed (*Phragmites communis*), to the first young and tender shoots from the suckers of which it so nearly assimilates in aspect, that a close examination is requisite to distinguish them when intermixed, and by this resemblance even an experienced

* It would be presumptuous to pretend assigning limits to the extension of the *Leersia* westward or northward of its present new locality, but its continental distribution does not warrant our indulging a hope that it will be found to spread much further than at present, at least in the former of these directions. The opinion put forward by me in a former note on this subject (Phytol. iii. 368), that the *Leersia* and *Isnardia* will be found coextensive in their distribution over England, appears to be receiving confirmation. To hazard a conjecture purely theoretical, the occurrence of both these plants may be predicted in Mr. Watson's districts of the Channel and Thames, with very possibly an extension of the boundary in a north-easterly direction into that of Ouse—this last being nearly in the polar limits of the parallel of the two species on the continent of Europe. In general, however, plants of the eastern or Germanic type of distribution fall short, in this country, of the latitude they attain on the continent, and there is no ground for supposing an exception to the usual law in the present instances.

† In America it is extremely common in wet or damp places of all kinds, but in England it would seem to be more perfectly aquatic, and to require to have its roots at least immersed. The habit of the English plant is likewise more erect than the American, in which the culms are usually very decumbent at base, and the growth diffuse or straggling.

‡ Some German writers consider the *Leersia* as introduced and only naturalized in central Europe,—an idea much on a par with the innumerable fantasies of a like kind entertained of our own plants. Thus Meyer, in his excellent work the '*Chloris Hanoverana*,' says of our grass in that kingdom: "An Gewässern selten und nur verwildert; ursprünglich aus Italien." In England, and no doubt in Hanover too, it is certainly indigenous.

eye is liable to be baulked and partially disabled from discriminating between them at all times. The culms of the *Leersia* are in general more slender than those of the reed, the joints further apart, and the sheaths clothing the internodes slightly swollen or inflated into a somewhat spindle-like form, particularly the uppermost sheath, which appears so from containing within its convolutions the embryo or mature panicle, according to the time of year. By slitting or tearing the sheath open, the included florets of an oblong figure, with strongly ciliated margins, together with the extreme asperity of the leaves and lower joints of the culm (in which it differs from every other British grass), will at any season reveal the true nature of the specimen under examination. But as the species may be growing in situations where it cannot be tested by handling, it becomes of importance to be able to distinguish it at some distance, from the aquatic herbage by which it is liable to be veiled from any but an experienced eye. The readiest mark in this case is the sudden or abrupt termination of the culm in a short, spreading leaf at the top of the slightly ventricose and fusiform sheath, looking as though the upper part of the plant had been plucked or broken off from the lower, and by this it may be distinguished from a distance when the panicle is yet undeveloped, or too slightly exerted to arrest attention. The tender shoots of the reed with which the Cutgrass is so apt to be confounded, are terminated by an acutely-pointed and convoluted leaf, enclosing other leaves destined to surmount it in their turn, till the growth of the shoot is completed and eventuates in the production of the flower-stalk and panicle; or if destined to remain barren, the shoot ends indeed in an expanded leaf, but that leaf is upright, not spreading, and, besides, long ere its growth ceases, the shoot has lost much of the resemblance it bore to the *Leersia* in its younger state, and is not likely to occasion a mistake between them. True it is, that the Cutgrass will itself present such a convoluted terminal leaf in its earlier growing state, till the axis has ceased to elongate, and hence there is still a chance of its being overlooked for a nascent reed, unless its identity can be put to the proof by drawing it through the hand, when the great asperity of the *Leersia* betrays it in an instant. Some attention is, however, necessary even here, for the plant varies a good deal in the degree of roughness; certain specimens gathered by me at Amberley were inconsiderably scabrous, whilst the majority, like the Hampshire ones, were as remarkable for their extreme asperity, which even makes some precaution requisite to avoid cutting the hand, an accident that is said to befall the women employed in weeding

it out of the rice-fields in Lombardy, which are greatly infested with this grass. There is always roughness enough in the Cutgrass to serve the purpose of discriminating it from the common reed and all other British Gramineæ, with common attention, but a search in the two or three uppermost sheaths for the concealed panicle should next be resorted to. The leaves of the Cutgrass are pale green, like those of the nascent reed shoots, but have mostly a shade of brown or olive in them not possessed by the latter; at other times the colour in both is too nearly alike to be distinguishable at any distance. At the close of summer, when the plant is fully matured, the leaves are easily recognized amongst the surrounding herbage by their obviously paler green, with a strong cast of yellow.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
October 12, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, October 5, 1849.—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced:—

‘Cybele Britannica,’ vol. ii., by Hewett Cottrell Watson, Esq.; presented by the author. ‘The Natural History of Staffordshire,’ by R. Garner, Esq.; presented by the author. ‘Transactions of the Horticultural Society of Berlin;’ presented by that society. ‘Journal of the Statistical Society of London;’ presented by that society. ‘Pharmaceutical Journal and Transactions;’ presented by the Pharmaceutical Society.

British plants from the Rev. C. Parish, Mr. J. B. French, Mr. S. Hailstone, Mr. E. Brown, and Mr. D. Oliver.

Mr. H. Bidwell presented specimens of *Lastrea cristata* (*Presl.*), collected by him at Bexley decoy, near Ipswich, in August last.

The continuation of Mr. W. H. Coleman’s paper ‘On the Plants indigenous to the Neighbourhood of Horsham, Sussex,’ was read.—*G. E. D.*

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 669).

Galeopsis Ladanum. In dry gravelly, sandy, or chalky corn-fields, fallows, waste ground, and on chalk or limestone rubble; also on ditch-banks, dry, stony hills, grassy borders of fields, thickets, and amongst pebbles on the sea-beach. Abundant in most of the chalk districts of the Isle of Wight, as along the Undercliff about Yarmouth, Newport, Shorwell, Bembridge, &c. Frequent, I believe, throughout the county. About Selborne, &c. Var. β . *canescens*, Koch; *G. canescens*, Schultz. Near Southampton, on shingles; Mr. Babington. I think I have remarked this form on the way from Southton to Netley Abbey, probably Mr. B.'s station.

——— *Tetrahit.* In cultivated ground amongst corn, &c.; in waste places, moist woods, thickets, hedges and about ditches; abundantly in the Isle of Wight and county generally. Var. β . Flowers white. At Lower Knighton, near the mill. A variable species in the colour and markings of the flowers. *G. ochroleuca* (*G. villosa*, Sm.) and *G. versicolor* may possibly be found in the county. The former is in Britain a rather northern plant, but the second has been found in several of the southern and eastern counties—as Sussex—and is very likely to prove a native of the sandy tracts along the borders of the county between Petersfield and Farnham, a district which has yielded several interesting additions to the Hants flora this summer, and is full of promise for future investigation.

Stachys Betonica (*Betonica officinalis*, Sm.). In woods, groves, thickets, and dry, open sandy or heathy pastures; very common in the Isle of Wight, and in most parts of mainland Hants visited by myself. OBS.—*S. germanica* should be looked for in chalky thickets and pastures, as it occurs in plenty in the adjoining county of Berks, as well as in Oxfordshire. I remember finding it a good many years since in one of the two larger of the Channel Islands, apparently quite indigenous, but the locality has escaped my memory.

——— *sylvatica.* In damp shady situations, woods, thickets and hedges, on ditch-banks, by stream-sides, and in waste weedy places; abundantly over the county and island.

——— *palustris.* In wet marshy places, boggy thickets, by rivers and ditches, also in moist arable land, corn-fields, gardens, &c.; very

common. Var. β . Leaves all shortly stalked. Near Shanklin; Miss E. Kirkpatrick. Field at Lower Morton, by Sandown. The var. *ambigua* (*S. ambigua*, *Sm.*), which differs from this in its broader, more cordate leaves, and which occurs in Sussex, Mr. A. Hambrough tells me he found by the side of a new road between Ryde and Sea View.

Stachys arvensis. In waste and cultivated ground, fallows, and dry open fields; very frequent in the Isle of Wight, and I believe throughout the county. Common about Ryde in the autumn, amongst turnips, potatoes, &c.

OBS.—*S. annua*, which is a common weed in various parts of central Europe, and has been found at Gadshill, in Kent, will in all probability prove to be native to the south-east of England, though at present supposed to have been imported with grass-seed in its only known station. I have seen it abundantly about Paris, and in Germany. *S. recta*, also indigenous to the north of France, and in Normandy, may some day become accredited to the English flora. The recent confirmation of *Teucrium Botrys* as indubitably wild at Box Hill, teaches us that we may look forward with confidence to the discovery of many more continental plants in the south and east of England, the flora of which is every year assimilating to that of the mainland of Europe, by the detection in increased abundance of recently discovered species, or the addition of others entirely new to Britain.

Ballota nigra. Var. α . *B. foetida*, *Lam.*, *Bab. Man.* p. 252. In dry waste places, borders of woods and fields, amongst rubbish, and on hedge-banks; everywhere, but in greatest plenty in general on approaching towns and villages. One of the commonest plants of its order in this part of England, occurring profusely in almost every hedge throughout the Isle of Wight, and in most, if not all, parts of the county equally abundant. Var. β . Flowers white; rare. By the road-side immediately opposite Rew farm, near Ventnor, and in a lane near Merston. Between Freshwater Gate and Farringford Hill; Mr. W. D. Snooke. I am at this time unable to say to which of the two supposed species my Merston plant and that of Mr. Snooke are referrible, but the Rew-farm specimens plainly belong to the *B. foetida* of Lamarck, in having very broad, shortly acuminate and recurved calyx-teeth, as does also the white-flowered form in a field-hedge between Idlecombe farm and Bottomground Rew, which I found growing with the common purple-flowered state, in moderate quantity and still in good flowering condition, October 28, 1845. But at St. Lawrence I have gathered a white-flowered *Ballota* exactly corresponding to the *B. ruderalis* of Fries, the calyx of which is longer, narrower,

and “gracefully dilated upwards;” the teeth ovate-lanceolate, tapering into long points, and erecto-patent. But as Mr. Bentham observes (*Labiât.* p. 598), “The form of the limb of the calyx is so uncertain within the above mentioned limits, that I cannot distinguish the three plants figured as separate species by Reichenbach,”—a remark to the correctness of which my own repeated observations on our native species enable me to bear testimony.

Marrubium vulgare. In dry waste places, pastures, by road-sides and about villages; rare in the lower and more level parts of the county and island, more frequent and most truly wild in the higher districts, and especially on the elevated chalk downs, and along the earthen or stone fences that traverse them. A local plant in the Isle of Wight, more frequent in West than in East Medina. Pastures at Bonchurch. Frequent on many parts of Afton Down, and in other places about Freshwater. On the slope of the down a little above Brook Church, in plenty, and about Brixton. Abundant on all the downs west of Calbourn; Sandown; Colwell: Mr. W. D. Snooke (in *Fl. Vect.*). Sparingly and sporadically in the lower grounds of the island, where in many cases it has probably strayed from cultivation. On several parts of Short Heath, near Selborne, and observed by me in various parts of mainland Hants, but I find no memoranda of particular stations amongst my notes, which for that portion of the county are of very recent compilation, and consequently imperfect as regards many species native thereto. I should say the *Marrubium* was by no means uncommon throughout the county, but partially or locally distributed, chiefly in the hilly parts of it. I have seen it growing plentifully and perfectly naturalized in Georgia, United States.

Teucrium Scorodonium. In dry woods, thickets, hedges, and rough, stony, bushy, or heathy places; plentiful in most parts of the county and Isle of Wight.

‡——— *Chamædrys.* On old walls, banks and borders of fields; a very doubtful inhabitant of the Isle of Wight, now apparently extinct. In the area of Carisbrook Castle; Dr. Stokes in Withering’s *Bot. Arrangem.* Certainly not to be found there now, since I have made repeated search for it myself, as have likewise persons residing at the castle, who show the ruins to strangers. It will probably be found hereafter in some part or other of the county. I have never seen it but on old walls or banks contiguous to ruined houses, and have gathered it on walls at Winchelsea and at Stapleton in Radnorshire. *T. Botrys*, which Mr. Borrer tells me grows certainly wild on Box Hill, Surrey, may with reason be expected on the chalk hills of

this county, being a species indigenous to most parts of central Europe, as France, Germany and Belgium.

Ajuga reptans. In moist woods, thickets, pastures and shady places; abundantly over the island and county. Var. β . Flowers light purple, pink or flesh-coloured; rare. In Quarr Copse and Apley Wood, near Ryde. Var. γ . Flowers pure white; occasionally. A patch in the wood adjoining to Calbourne New Barn (New Barn Hummet), June, 8th, 1844, and observed in the same place not unfrequently the following year. I have also picked this variety near Ryde. Whitedell; Mr. W. L. Notcutt. "Abounds in the Isle of Wight;" Sm. in Engl. Fl., but this can scarcely be said of it at the present day, although somewhat more frequent than the flesh-coloured form with us.

——— *Chamæpitys*. In dry, sandy, gravelly or chalky fields, and rough, stony ground; very rare? A dubious inhabitant of the Isle of Wight, reported to me as growing about Week farm, near Niton, along with *Melampyrum arvense*, but though a very likely station to produce it, this species has never occurred to my observation there or elsewhere in the island. On Longwood Warren; Rev. Messrs. Garnier and Poulter in Hamp. Repos. !!! The plant grows here on the bare stony gravel or diluvial deposit, but would seem to be uncertain in its appearance and in amount, as I have not succeeded in finding more than a few very small specimens, but have seen larger and more abundant ones from thence in the possession of others. About Old Alresford; Mr. Wm. Pamplin. Abbotston Warren; Mr. J. Forder. When last at Alresford, I learnt from Mr. F. that the plant is very capricious in this station also, nor have I myself seen it in or from that neighbourhood.

N. B.—*Hyssop* (*Hyssopus officinalis*, L.), is perfectly and abundantly naturalized on the ruins of the beautiful and romantically situated Abbey of Beaulieu in the New Forest, particularly on the walls and in the area of the cloisters; now as fully established and permanent as the wall-flower, calaminth, pellitory, and other mural plants that flourish on the picturesque remains of that once "proud abbaye." Still partially in flower, October 9th, 1849.

Verbena officinalis. Of extremely common occurrence throughout the county and Isle of Wight, on dry banks, along hedges, road-sides, in waste ground, churchyards, &c., also, but less frequently, in pastures and woods remote from habitations. A truly indigenous English plant, although found most abundantly in the lower enclosed and inhabited country, yet occasionally haunting very sequestered spots.

Woods at Swainston, Ape's Down, &c. Rather rare about Ryde, but extremely common in the island generally. Plentiful about Winchester and elsewhere on the chalk.

Pinguicula vulgaris. In bogs; rare? Not yet detected in the Isle of Wight. On Titchborne Common; Mr. William Pamplin and Mr. J. Forder. Gathered there in tolerable plenty in flower and fruit June 22nd, 1849 !!! In a chalk-pit! close to the railroad at Brambridge, near Otterbourne; Mrs. Delmè Radcliffe in the herbarium of Miss G. E. Kilderbee! Near Cranberry (Cranbury?) and Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. In the marsh by the Itchen, near Otterbourne, called the Common Mead; Miss A. M. Yonge. Bransbury Common, near Bullington; Rev. D. Cockerton. Mr. Curtis thinks it grows with *P. lusitanica* in the Boscombe Chine station, given below for that plant. The common Butterwort doubtless exists in other parts of Hants, but is much less frequent in the south than in the north of England.

———— *lusitanica*. In spongy bogs and moist heathy places, rare, but apparently less so than the preceding species. First found in the Isle of Wight in July, 1839, by Miss G. E. Kilderbee, on a piece of boggy ground called Little Moor, just below Cockleton farm, near West Cowes, in considerable plenty !!! On Colwell Heath, Freshwater, but sparingly. These are the only stations known to me at present in the island for this truly western and maritime species, which attains in this county its most easterly English limit. Abundant at the wet base of the cliffs at the mouth of Boscombe Chine, near Bournemouth (the fashionable watering place five miles west of Christchurch); Mr. Curtis (Icon. ex loco in Brit. Entom. vol. viii. tab. 341). "In several of the boggy places on Shidfield Common (near Wickham), above Mr. Denny's, but farther south from the road, below a bank in wet ground, and also in wet ground below (*i. e.*, south) of the church;" Miss Hawkins. I suspect this station, from its rather inland position, may really belong to *P. vulgaris*. In bogs near Stonham, and in places a little north of Southampton; Sir J. Banks in Bot. Guide. Townhill Common (Southton?); Mr. Winch in New Bot. Guide. According to the authors of the old 'Botanist's Guide,' the species is stated to be "common in this county" on the authority of Hudson, probably from his verbal testimony, as Hudson does not say so in the 'Flora Anglica,' and the assertion is scarcely a correct one, certainly not so as respects the county at large, since it is only on and near the coast that this species of *Pinguicula* is to be found at all.

Utricularia vulgaris. In clear ditches, drains and pools, also in peat holes, but very rare in the Isle of Wight, and apparently equally so in mainland Hants. Ditches in the marsh at Easton (Freshwater Gate) plentifully; Mr. W. D. Snooke in Fl. Vect. !!! I find it there in several of the drains or ditches abundantly, but have never succeeded in obtaining it in flower, nor have I any other county station to record at present for a species which can hardly be supposed absent from or even very rare on the mainland division of it.

——— *minor.* In similar places with the last, and as regards the Isle of Wight equally uncommon. Abundantly in a ditch in the meadows immediately below Mr. Jacob's farm at Langbridge, by Newchurch, but flowering very sparingly, July 5th, 1842. Profusely in the same place in September last, forming dense masses, but not appearing to have blossomed at all this season. It would seem to be more frequent, like all our other aquatics, on the mainland part of the county. Near Heron Court (by Christchurch); Hon. C. A. Harris in Curtis's Brit. Entom. vol. viii. tab. 343. Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamps. Repos. Titchfield Common; Mr. W. L. Notcutt! *U. intermedia*, by far the rarest of our three British species, occurs in peat holes in Dorsetshire (Purbeck, I think), and will probably be found in the adjoining parts of Hants on Poole Heath, or on the extensive moorlands of the New Forest district, about Ringwood, Christchurch, &c., as well as on the eastern forests of Bere, Wolmer and Alice Holt.

Primula vulgaris. In woods, thickets and groves, on banks, under hedges and about the borders of fields, also in open meadows and pastures; in profuse abundance in all parts of the Isle of Wight and mainland Hants. Var. α . Flowers pure white, with a yellow eye. Occasionally about Ryde. I have gathered it in Whitefield Wood, and various other places in this neighbourhood, I think also, in Quarr Copse. In Symington Copse, between Somerford and Medham farms, near Cowes, in one spot abundantly. Near Landguard farm, by Shanklin; the Miss Herons!! Very fine and plentiful in a copse near the Medina, by New Fairlee; Mr. G. Kirkpatrick. Var. β . Flowers bright purplish red; rare. Wood between Steephill and St. Lawrence; Mr. Albert Hambrough!!! where this beautiful variety is truly wild, and growing in a clump of considerable size. In a field by Morton House; Dr. Salter (wild?). I found it some years back abundant on banks in the grounds at Montpellier House, Ventnor, but probably disseminated from roots originally planted, the variety being frequent in gardens. Var. δ . *caulescens*. Scape umbellate,

flowers deeper yellow. In copses occasionally. In a copse betwixt Shanklin and Bonchurch I found in April last two roots of this variety. The copse was full of primroses, but not a single cowslip was to be seen on or near the spot, the leaves were truly those of the primrose, and excepting in the umbellate flowers and their somewhat deeper colour, the plants differed in nothing from the ordinary primroses which grew around them. In this form we perceive the first approach to the cowslip structure, of which it possesses two of the attributes, the umbelled arrangement of the peduncles, and deeper tinted corolla. It is, in fact, the stepping-stone from the simple primrose to the var. β . of the following species (*P. veris*). Under cultivation, and occasionally in the wild state, the primrose sends up a single erect stem various in height, bearing an umbel of reddish or brown-edged, often richly-coloured flowers, the well-known Polyanthus of our borders, with all its beautiful, but endless varieties. The flowers of the wild polyanthus primrose are usually liver-coloured, as we see them become in poor or neglected garden soil. This form of the primrose I have gathered in Sussex (near Hastings), but have not met with it in the Isle of Wight myself, although it has occurred here to Mr. Albert Hambrough. At no season, perhaps, is the primrose wholly out of bloom in this county, unless during the latter summer and earlier autumn months; for, as it is the last flower of spring to retire at the approach of fervid summer's gayer throng,—

—————pale primroses
That die unmarried ere they can behold
Bright Phœbus in his strength,—

so is it the first returning to await in hopeful anticipation through the waning year's long and dull decline, the brighter days that follow on the birth of the next. A bunch of primroses on New Year's morn is a gift, from the mildness of our winters of late, hardly more thought of as a rarity than a nosegay of spring daffodils or a bouquet of sweet violets at Lady day.

Primula veris. In meadows, pastures, woods, on dry banks, chalky slopes and downs; more local than the primrose, but abundantly distributed over the entire county and Isle of Wight. Rarely seen about Ryde; in fields near Quarr Abbey and the Spencer road, sparingly. Frequent about Brading and Yaverland, in fields at Ashe, Nunwell, &c. About Shanklin, Newchurch and Appuldurcombe. About Carisbrook Castle on the walls and glacis. Very common

along the Undercliff at Eastend, Bonchurch, Ventnor, Steephill, &c. Very fine on grassy slopes at Niton, to the westward of that village, everywhere about Thorley, and in various parts of Freshwater. Generally dispersed on and at the base of the central chalk range, on the downs, and in the woods that partially clothe their slopes, as about Idlecombe, Buccombe, Chillerton, Shorwell, &c., in the greatest plenty. On mainland Hants the cowslip occurs abundantly about Winchester almost everywhere. Frequent about Basingstoke, at Hackwood Park, Maple Durwell,* and common in pastures at Nately, &c. In the north-west of the county at King's Clerc, &c. Var. *β. elatior*. Limbs of the corolla flat or flattish. *P. elatior*, *With.* (not Jacq.). Not uncommon intermixed with *α.*, into which it may be seen so insensibly passing that many individuals appear exactly intermediate betwixt both forms. Near Brading, and in various places between Newport and Shorwell. At Steephill not unfrequent. Very common in meadows about Thorley. At Swainston; the late Lady Simeon. Meadow betwixt Nunwell New Farm and the down; frequent; Dr. T. Bell Salter. On visiting the field with Dr. S. in May last not a single oxlip could be found amongst thousands of cowslips, which would seem to show that the former is not of equal permanency with the latter. Probably of equal frequency over the county. About Basingstoke, at Chingham, &c., where the poor people transplant them into their gardens. The oxlip is occasionally found in copses and meadows with the common primrose, where a cowslip does not grow within miles of the place. In *P. veris elatior*, the calyx is longer, narrower, with more acute segments than in the cowslip, in which the calyx surrounds the corolla like a loose bag, open at the mouth, and considerably inflated, not closing around the tube as in the oxlip. The flowers of the latter are nearly inodorous, though occasionally very sweet scented, and the leaves have not the same contraction towards the middle, as in the cowslip.

The oxlip has been thought by many to be a hybrid betwixt the cowslip and primrose, but conceding the point to those who still insist on keeping the two last separate, from what we know of the modifications to which both are subject, and by which they as it were anastomose in the polyanthus, it is reasonable to conclude that the oxlip is the primary deviation from the cowslip to the primrose form, and an advance half-way from the cowslip to the polyanthus, which last is itself pretty exactly at the point of structural equidistance

* Pronounced Mapple Durwell by the natives.

between *P. veris* and *P. vulgaris*. The specific identity, however, of the cowslip and primrose being once admitted, the notion of the oxlip being a mule production (to which its occurrence in localities producing only one or other of the plants is a solid objection) falls to the ground immediately. The cowslip may be regarded as a contracted, and, so to speak, concentrated, form of the primrose, with smaller leaves and flowers, which last are more highly coloured and more powerfully scented, the sulphur yellow of the latter becoming exalted into golden yellow, and the five tawny watery rays around the orifice of the tube heightened into as many well-defined, deep orange dots; the peduncles and calyx segments shorter, the limb of the corolla contracted, and hence cupped or concave, and the leaves constricted in the middle, each of these differences denoting a concentration or abridgment of the organs of the entire plant, displaying itself exactly in proportion to the degree in which the specimen recedes from the typical primrose towards the normal cowslip. In the words of Mr. H. C. Watson (*Phytol.* iii. 44), which express my own sentiments on the subject, "Even those botanists who refuse faith in the carefulness or exactness of the experiments on record, may see with their own eyes that the intermediate links do exist (between genuine primroses and cowslips). Indeed, they may be raised by any body, may be seen in many gardens, or may be found wild by diligent search. Nevertheless, while I see no escape from the necessity of doing so, I am still somewhat reluctant to place cowslip and primrose as a single species. The fact, once fairly admitted, of such extensive varieties of a single species, must throw doubt upon thousands of supposed species as they now stand recorded and described in books." The question of the specific identity or diversity of the primrose and cowslip, with all the light apparently thrown upon it, is still beset with difficulty; and I see no more plausible way of solving the problem than by placing these two plants in the category of what are called permanent races, in each of which certain individuals are found evincing a tendency to pass over reciprocally to their opposite limits of structural divergency, the change in each individual being more or less complete or imperfect according to the force or feebleness of the nixus impelling it to deviate towards either extreme, the impulse itself dependant on, or influenced by, soil, climate, or occult causes beyond our present ken and inquiry. It seems placed beyond doubt that the seeds of the primrose are capable of producing cowslips and every intermediate grade betwixt these two, or in other words, all the puzzling varieties to which we give the name of oxlip;

it is also indisputable that roots of the primrose have been seen bearing both cowslips and oxlips along with their own proper flowers, yet the tendency to metamorphosis would appear to be very strongly exerted towards the cowslip termination of the series, and very feebly in the direction of the primrose extremity, as I cannot call to mind a single recorded instance of the seed of a genuine cowslip reverting to the absolute simple primrose of our hedgerows. The effect of cultivation on the *Primula* seems that of causing it to oscillate betwixt the extreme types in various degrees, as may be seen from the very interesting, and, to myself, convincing experiments of Mr. H. C. Watson. In one of these trials (*Phytol.* ii. 217), a caulescent variety of *P. vulgaris*, but approaching nearer in character to the cowslip than to the primrose, produced eighty-eight seedlings, five of which proved genuine cowslips, twenty true primroses, and the remaining sixty-three a sliding series of intermediates betwixt cowslips and primroses. Here a middle form was selected, and it is somewhat remarkable that with a leaning in the parent towards the cowslip conformation, the progeny should tend to assume the features of the primrose. In another experiment (*Phytol.* ii. 852), a true cowslip being taken, the results were less satisfactory, as but a very few of the seedlings flowered. As far, however, as could be seen, the entire progeny retained the main characteristics of the parent cowslip, with just that degree of deviation towards the opposite or primrose type which might have been anticipated;—they became oxlips. I would beg to suggest to Mr. Watson a repetition of this latter experiment, and that one of the resulting oxlips be tested in like manner with the subject of the former trial, in order to see whether the series might be carried on as in that, to the production of genuine primroses and cowslips from the same intermediate form, but produced by culture from an extreme type. The primrose, it is well known, is absent from all the interior regions of northern Europe, where the cowslip is indigenous; it would be very desirable to obtain cowslip seed from these parts, say Moscow, for example, and try whether the primrose type of the species might not be derivable from it in our maritime climate by the process of cultivation just alluded to. This would settle the question, if it be not so already in the mind of every unprejudiced person, beyond all further controversy, were it not that primroses and cowslips are so different to common eyes and in popular belief, from our earliest dallings with them in our infant rambles, and our first affections so bound up with their individuality, that overpowering indeed must the evidence be that could induce the mass of mankind to forego their reliance on the

unquestioned faith of their forefathers and the creed of their childhood, and consent to believe in their identity.

The plant now regarded as the true *P. elatior*, *L.*? and of Jacquin, and first formally brought before the notice of British botanists in 1842 by Mr. H. Doubleday, who discovered it in wet meadows at Bardfield, in Essex, and published it in this journal (*Phytol.* i. 204) as probably the genuine plant of that name of the German botanists, has certainly much the air of a distinct species, yet do the observations of Mr. H. C. Watson (*Phytol.* i. 1001) tend to throw doubt on the fact, he having, like myself, "seen exceptional instances to all the characters (taken singly) by which this plant is distinguished from *P. vulgaris* and *P. veris* in Mr. Babington's Manual; the specific character drawn out by that author being quite accurate, but not invariably applicable." On the 19th of last April I visited Bardfield with the view of seeing and procuring specimens and roots of the plant in its native locality, when the impression I received from the sight of some acres of meadow covered with it in full flower, was, that of its being a third and probably equally permanent race or variety of the same *Primula* of which our primrose and cowslip are co-ordinate representatives.

The Bardfield *P. elatior* is admirably depicted in *E. B.* vol. xv. t. 513, doubtless from eastern county specimens, as they were communicated to Sowerby by the Rev. Mr. Hempstead, who, I believe, resided in Essex. The leaves of the Bardfield oxlip exactly resemble in general those of the cowslip, but in many of my specimens they are as much like those of the primrose, tapering, as they do, gradually into the foot-stalk without any contraction or abruptness, and as they are sometimes seen to do in the cowslip also. The calyx in most of my specimens is close, narrow and nearly cylindrical or tubular, being but slightly ventricose or inflated, a little shorter than the tube of the corolla, acutely five-ribbed and angled, the teeth shortish and mostly acuminate, broader in proportion than those of the primrose, but in some of the specimens the calyx makes a considerable approach to that of the primrose in becoming ovoid and ventricose. The throat of the corolla is remarkably open, and free from those folds, plaits or puckers, giving the appearance of a slight crown or border to the tube, often so conspicuous in the primrose,* being, in

* Mr. Watson thought the want of these folds might prove a good character in the Bardfield oxlip, but they are often very indistinct or wholly obliterated in the primrose itself, and still oftener in the cowslip, the throat of which is much less contracted than in the primrose.

fact, funnel-shaped within and without, somewhat as it is in *P. Auricula*. The limb of the corolla is sometimes flat, more usually cupped or funnel-shaped (another point of resemblance to the cowslip), and in colour intermediate between that and the primrose, as we usually see it in our commonly so-called oxlips. The flowers are pleasantly, but not powerfully scented, and are drooping (at least the outer ones) as in the cowslip, of which the corolla has less the form than of the primrose, but is hardly more than half the size of the latter, and the segments are less rounded or more abrupt, and do not overlies each other, but are separated by an evident space their entire length in most instances, an appearance which the umbellate variety of *P. vulgaris* often assumes, and which cannot therefore be held distinctive of the Bardfield plant. The scapes differ much in degree of hairiness, but in general are very densely clothed with woolly pubescence. In the length of the style and position of the stamens this plant varies like others of the genus, and indeed is too much like those old and early favourites, the primrose and cowslip, to be satisfactory to the lovers of broad, tangible, immutable distinctions. It must, notwithstanding, be allowed the merit of being a well-marked form, as permanent probably as either of its congeners, but I have seen some varieties of the latter that have looked very like the Bardfield plant, and the fact of its growing alone, unmixed with common cowslips or primroses, is no greater proof of specific difference than in the case of these two last, which, as is well known, will overspread whole districts, flourishing side by side, or arrogating one or the other exclusive possession of entire provinces or even kingdoms. Gaudin* remarks of *P. elatior*, "*Priori (P. acauli) utique nimius affinis, ut in speciminibus quibusdam characteres diagnostici fere omnino evanescent.*" He might have added that it comes as near to *P. veris* as to *P. acaulis*, and is almost as exactly intermediate betwixt them as are many of our false oxlips. The same excellent botanist notices the extremely acute calyx segments of *P. elatior*, "*calyce acutissimo,*" as part of his specific character. The only tolerably certain figure I can find of *P. elatior* in the works of the older botanists is that of Clusius, '*Rariorum Plantarum Historia*,' p. 331, left-hand figure. That of '*Flora Danica*,' tab. 434, may admit of doubt.

Hottonia palustris. In ditches, drains and ponds. To present appearance an extremely rare plant in Hants, and certainly not native to the Isle of Wight. Abundant in a pool called the Lake, in a green

* Fl. Helv. ii. p. 84.

lane at Aldershot, near Farnham; Mr. W. O. Newnham !!! This, the only Hants station as yet known to me for the above beautiful aquatic, is just within our limits, being close to the west side of the stream called the Blackwater, which separates Hampshire from Surrey. It will doubtless be found in other quarters of the county, being not unfrequent in many parts of Sussex, Surrey and Middlesex, and has indeed been indicated to me with some doubt by Miss L. Minchin as observed by her at Soberton, on the north of the Forest of Bere. The American *H. inflata*, which I have gathered in the States of Rhode Island and Georgia, though vastly inferior in appearance to the European species, from the small size of its white, inconspicuous flowers, hardly larger than in our *Samolus Valerandi*, and somewhat resembling them, is a most singular plant, the scapes being swollen or inflated between the verticils to the thickness of the finger, and having the aspect of being constricted at intervals by tightly-drawn ligatures. If this be a provision for floating the flower-scapes, it would seem to be less needed in the American than in our own species, for the former grows freely rooting on wet mud, whilst the other never, I think, flourishes except where the lower part of the plant is entirely submerged.

Lysimachia vulgaris. In wet or boggy meadows, thickets, osier-beds, on ditch-banks and about the margins of ponds, rivers and brooks. Abundantly in many parts of the Isle of Wight, but rather locally distributed, and by far the most common in East Medina. In various parts of Sandown Level, and throughout the valley of the East Yar from Yarbridge to Horringsford Bridge, in ditches and swampy thickets, as about Newchurch, Alverstons, Lake and Blackpan Commons, &c., in great plenty. Along the Medina River, in some places in profusion, especially between Rookley and Cridmore, on the Wilderness, &c. Very common about Godshill, by Bagwich, at Bridge and Budbridge, Bowbridge, &c. Marsh at Easton, Freshwater Gate. In Pan Moor, by Newport (Mr. G. Kirkpatrick), and numberless other places. Extremely common in mainland Hants, at least towards the south coast. At Bishop's Stoke, Southampton, Winchester (about King's Worthy, &c.), Petersfield, and elsewhere in East Hants. In vast abundance, almost covering some of the boggy meadows nearest the shore to the west of Alverstoke, near Gosport. Bog on Titchfield Common. Plentiful in West Hants, in the New Forest and Christchurch hundreds, about Boldre, Lymington, in the Avon betwixt Christchurch and Ringwood. Most profusely about Sowley Pond, a fine sheet of water about three miles east of Lymington, and in all the

low meadows and pastures in the greatest abundance about Sowley, Eastend, &c. I have received notices of its occurrence from several friends and correspondents, but all these stations being in the above mentioned districts of south Hants, it is needless quoting localities for a plant so universally distributed and abundant as this. Probably equally common in the north of the county, although my notes contain no memoranda of its having been remarked in that quarter by myself or others. In very shady, wet thickets the leaves are sometimes deep green, shining and glabrous above, the whole plant extremely luxuriant, in which state I have gathered it between Apse and Ninham, near Shanklin, above six feet in height. The beautiful variety having the base of the corolla fulvous within, and red or orange stamens, is frequent on the Wilderness, and elsewhere in this island. Capsules in some situations not perfected, in others copiously matured, 5-10 valved?, usually, I think, indehiscent. The numerous reddish or cream-coloured, angular seeds are covered with a friable mealy coat (testa), giving them the aspect of little fragments of chalk or pipe-clay.

Lysimachia Nummularia. In damp meadows and pastures, on ditch-banks, by stream-sides, the margins of ponds, and in other watery situations, but not common. Not yet ascertained to be a genuine native of the Isle of Wight. Found a few years since in some abundance by Mr. Wm. Jolliffe, groom to R. Milligan, Esq., of Ryde, in a field exactly opposite Lord Spencer's house, growing in a cavity made for planting a tree !!! The hole has since been filled up, and the plant destroyed, which, if not designedly introduced, had established itself there from some neighbouring garden. Above the shore near West Cowes; Rev. W. H. Coleman, but who is not certain of the correctness of his observation. About the edges of the pool in which *Hottonia palustris* grows at Aldershot, near Farnham. Damp meadow ground in the Duke of Wellington's park at Strathfieldsaye, June, 1848. Wet ground by the Boldre River, just below Brockenhurst Bridge, July, 1849. Netley Wood and Selborne; Miss L. Sibley. Side of Titchfield River; Mr. W. L. Notcutt. Probably dispersed over the entire mainland of the county, but its apparently total absence from this island cannot be accounted for by the want of places congenial to its growth. A favourite plant with the class of "window gardeners" in London. The Latin name was anglicized into Herb-twopence by Turner, from a fancied resemblance he perceived in the leaves to (silver) pennies, "by coples one against another." The same old herbalist first imposed the name of Spindle-tree on *Euony-*

mus europæus, for which he informs us he could find none in English at that time, a fact that should teach us caution how we assume a tree or shrub not to be indigenous because unfurnished with any ancient or vernacular name. In like manner we owe the name of Pasque-flower for *Anemone Pulsatilla* to Gerarde, who was "moved" thereto, as he informs us, from its flowering about Easter.

Lysimachia nemorum. In moist shady places, woods, thickets, groves, on damp hedge-banks and by the grassy margins of rills, &c.; frequent over the county and island. About Ryde, in Quarr Copse, Apley Wood, St. John's Wood and elsewhere, frequent. Plentiful in woods near Appuldurcombe and along the Wootton River. Apse Castle, near Shanklin, Parsonage Lynch Newchurch, and many other places. In the membranaceous, pellucid, globose capsules, having five valves, but mostly opening transversely; in the subhemispherical seeds, rough with wart-like and finally chaffy or scaly granulations; in the free stamens, and its general structure and habit, this plant is as much an *Anagallis* as a *Lysimachia*, or even more so.

Anagallis arvensis. In cultivated and waste ground, corn-fields, on dry banks, by way-sides, in pastures, woods and under walls, &c.; abundant in all parts of the county and Isle of Wight. Var. β *carnea*. Flowers pale pink or rose-colour, with a purple eye. Under the cliff a little way from the Chine, Shanklin, July, 1842. Border of a field betwixt Weeks's and Little Smallbrook, near Ryde, 1837; Miss T. Price! but I could not find it the following year. On a piece of waste ground at the upper end of Dover Street, Ryde; Miss Lucas!!! Field near Shanklin, by the footway from thence towards Luccombe; Miss Kirkpatrick!!! Near Barnsley farm; Dr. T. B. Salter!! Var. γ *cærulea*. Flowers sky-blue. A. *cærulea*, *Sm.* Rare in fields, &c. Field between Westridge and St. John's, October, 1839. Hedge-bank in Quarr Copse, a single specimen; the dowager Lady Knowles! Field at St. Clare, near the sea, 1844; the Lady Catherine Harcourt. Sandown, on a piece of waste ground near the sea; Miss S. Lovell! At Bonchurch; Dr. Martin. Near Christchurch; Mr. J. Hussey. I have no other mainland stations as yet to record for either of the above varieties.

In my Isle-of-Wight specimens of γ . the stems are equally procumbent, and the whole plant, with the exception of the rather smaller and differently-coloured flowers, in all points exactly similar to the common scarlet kind, amongst which it was growing. In both, the edges of the corolla are finely fringed and crenulate, and that in an equal degree. The leaves of the blue pimpernel are often lanceolate,

as I have gathered it at Cobham in Kent, but this character is inconstant, the leaves in the specimens near Ryde being as broadly ovate as in the usual or normal state of the plant. Mr. Leighton has remarked the same of this variety in Shropshire. In the white or pale rose variety β . the corolla is also smaller than usual, or about the same size as in γ .; in other respects the plant does not differ from the common red form. The absolute specific identity of the three forms of *A. arvensis* here mentioned has been established beyond all controversy by the experiments of Professor Henslow (see Loudon's Magazine of Nat. Hist. iii. p. 537). I have myself seen the cultivated *Anagallis* in the garden of the Rev. Wm. Sherson, at Yaverland, bearing flowers of a bright blue on the same stem with those of the flesh-coloured variety, of which there was an entire bed. The change from pure red to simple blue (both primitive colours) is, I believe, very uncommon in Nature's chromatic sportiveness, and it is perhaps to the flowers of the pimpernel that we should look for the best chance of getting a correct idea of that anomalous colour, sky-blue scarlet, of which most persons must have heard, but which very few indeed can have seen. The flowers of this plant often undergo at the close of autumn, or in wet seasons, from the deficiency of light and heat, a remarkable transformation, the corolla becoming cleft to the very base or pentapetalous, the segments rounded, much shorter than the calyx and wholly green or partially coloured, and the stamens smooth. Sometimes the calyx is converted into a leafy whorl, the capsule becomes five-angled or is itself turned into a bundle of leaves. All these changes I remarked in the wet autumn of 1841, on specimens from fields above Sandown Bay. They are also noticed by Gaudin (Fl. Helv. ii. p. 67, ad calcem), who observes that the seeds of the common scarlet *Anagallis* are fatal to small birds, which eat those of the blue variety (held by him distinct) with impunity.

Anagallis tenella. In boggy, springy or peaty ground, by the sides of drains and rills, amongst the short herbage of moist heaths, commons, and in woods; very frequent in the Isle of Wight, and in many other parts of Hampshire, at least towards the coast. Near Ninham farm, and in a field near Weeks's, by Ryde. Abundant on slipped land near Niton, especially betwixt Knowle and the Sandrock Spring, fringing the margin of a little stream descending to the shore from the cliffs, and where my friend George Kirkpatrick, Esq., and myself found a variety with pure white flowers, July 9, 1839. Bog at Cockleton, near Cowes. On Lake and Blackpan Commons, in plenty. Most abundantly in a moory meadow close to Stone farm, near New-

church, and on moors about Rookley and Godshill plentiful. Boggy ground near the shore between Norton and the preventive station, Freshwater, in plenty. I find it here and there in a great variety of other places. In Luccombe Chine, a very little way from the path on the left going down from the sea, in great plenty; Miss G. E. Kilderbee! Heath at Colwell (where I find it) and many other places in the parish of Freshwater, in plenty. Apse Heath; Mr. W. D. Snooke (in Fl. Vect.) Very common, I have reason to believe, over the New Forest and Christchurch hundreds. Moors about Bournemouth (1849), and frequent on the moory heaths of West Hants generally. I feel pretty confident of having seen it on Petersfield Heath and on Wolmer Forest. Boscombe Chine, near Bourne; Mr. J. Curtis in litt. (and Brit. Entom. cum icone) !!! Droxford Forest; Rev. E. M. Sladen. Itchenstoke; Miss L. Legge. Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Titchfield Common; Mr. W. L. Notcutt. Short Heath, near Selborne; Dr. T. B. Salter !!! This most elegant and delicate plant probably becomes rarer in the north of the county, or more remote from the sea, as I have no localities from my own notes or from the observations of others to give for its occurrence in that quarter.

Centunculus minimus. In damp, sandy, gravelly places on heaths, &c., often with *Radiola Millegrana*; probably not rare, but made to appear so from its extreme minuteness. Near Heath farm, by Newport. At the foot of Bleak Down, by the junction of the Chale, Niton and Godshill roads. Heath at Colwell, plentifully; Mr. W. D. Snooke (in Fl. Vect.) !!! On Shortheath, near Selborne, Sept. 1848. On wet gravel betwixt Boldre village and Royden farm, Oct. 10, 1849. Near Christchurch; Mr. J. Hussey (in litt.)

Glaux maritima. In salt-marshes, creeks and ditches, and in brackish meadows near the sea; very common in the Isle of Wight and along the opposite shores of Hants. Most abundantly in the meadows behind Ryde Dover, and sparingly on the Dover itself, if not now destroyed by buildings. Mouth of the Wootton River in plenty. Abundant by the Medina, above West Cowes, and in the meadow nearest the sea at Freshwater Gate, also by the marshy sides of the Yar under Beckett's Copse. In Gurnet Bay; Miss G. E. Kilderbee!!! In Portsea Island, and along the coast of Hampshire so generally that I have neglected noting down special localities. Shore near Cams, and near Quay (by Fareham); Mr. W. L. Notcutt. Petals said to be sometimes present in the south of Europe.

Samolus Valerandi. In wet, marshy places, low meadows, by

brooks, the sides of drains and ditches, also in moist woods; by no means rare in the Isle of Wight and the parts at least of Hants adjacent to the coast, being more frequent in the vicinity of brackish than of fresh water. In the marsh ditches behind the Dover, Ryde, here and there. Plentifully in the boggy part of the wood called Chapel Corner Copse, on the west shore of the Wootton River, at its mouth. More common in Freshwater Island* than elsewhere in the Isle of Wight. At Norton. Plentiful in some of the marsh ditches at Easton, and in salt-marshes along the Yar, and about a little pool in a meadow not far from Yarmouth Mill. Pretty abundant on the boggy parts of Colwell Heath, at its upper end. On the beach at Wolverton, by St. Lawrence, near a spring; the late Mr. Samuel Hailstone, jun. ! Near Blackgang; Miss G. E. Kilderbee ! Blackgang Chine; Mr. J. Curtis in Brit. Entom. vol. iv. tab. 154. Banks in Colwell Bay and in the marsh at Freshwater Gate, plentifully; Mr. W. D. Snooke in Fl. Vect. !!! Ditches at Schoolhouse Green, Freshwater; Mr. Charles D. Snooke in litt. In a low, marshy meadow at Keyhaven, near Milford. In plenty in one of the boggy meadows behind Stokes Bay, to the westward of Alverstoke. Hill Head; Mr. Robinson in Mr. W. L. Notcutt's Cat. of Plants of Fareham in Phytol. ii. 211. The present species is stated by writers to occur in almost all parts of the globe, but this must be understood with considerable limitations. It is certainly not a very northern plant, and many of the boreal countries of Europe want it altogether. In America it would seem to be wholly absent, the *S. Valerandi* of American botanists being a very different species, long confounded with our own, and now called *S. floribunda*. Before I was aware of the separation, I was struck with the difference of aspect in a *Samolus* I found in Alabama, in wet woods along the Mississippi, and about Carrollton, by New Orleans. *S. floribunda* differs from *S. Valerandi* in its much and diffusely branched stems, shorter, less erect and subpaniculate racemes, in its very slender, filiform, more spreading and generally straighter pedicels, and notably in its far smaller flowers and capsules, the former very minute, scarcely half the size they are in the European plant, the corolla but little exceeding the calyx in length. The leaves are described as obtuse, and so they often are, but in the plant

* The western extremity of the Isle of Wight, insulated by the river Yar, is called Freshwater Island in old maps, as the eastern end, though less perfectly cut off by the estuary of Brading, was called the Isle of Bembridge, terms which, though not now in common use, very conveniently serve to designate these two well-defined districts.

as I find it at Carrollton all the leaves, even the very lowest, are more or less acute, the middle and upper obovate-lanceolate, and very distinctly pointed, of a thin, membranaceous texture, and bright, lucid, somewhat shining green. I have never seen specimens from the middle or northern states, but the *S. Valerandi* of Dr. Darlington's 'Flora Cestrica' evidently belongs to *S. floribunda*. The specific character of *S. Valerandi* may be thus amended: Stems simple or sparingly branched, leafy; leaves obovate-oblong, or spatulate, very obtuse; racemes many flowered, straight, simple, erect; pedicels bracteate, patent; corolla twice the length of the calyx.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
October, 1849.

(To be continued.)

ERRATA.

- P. 663, line 1, *for* "Bab." *read* "Bob."
 „ line 14 from bottom, *for* "Rockley" *read* "Rookley."
 „ line 15 from bottom, *for* "How-" *read* "Hor."
 P. 664, line 21 from top, *for* "Scome" *read* "Sconce."
 P. 665, *for* "Armfield" *read* "Arnfield."
 P. 668, line 12 from top, *for* "Gatecomb" *read* "Gatcomb."

Experiments on the Specific Identity of the Cowslip and Primrose.

By JOSEPH SIDEBOTHAM, Esq.

THE communication to the 'Phytologist' by the Rev. J. S. Henslow (Phytol. iii. 651), reminds me that I have not yet furnished the readers of the 'Phytologist' with the result of some experiments on the *Primulæ* completed this season (vide Phytol. ii. 887).

In the summer of 1846 I determined to try some experiments on the specific identity of *Primula veris* and *P. vulgaris*, in imitation of those published by Mr. Watson and others, but on a much larger scale, and with such precautions that the result might be relied on. With this view I transplanted seven or eight roots of *Primula veris* from Reddish Vale into my garden; my late friend E. S. Wilson sent three plants of *P. vulgaris*, var. *intermedia* (L. C.), from the neighbourhood of Congleton; *P. vulgaris* I obtained from Bredbury Wood,

and *P. veris*, var. *major* (L. C.), from the Manchester market; *P. Jacquinii*, received from Mr. H. Doubleday, was already in the garden.

In 1847 most of these were flourishing plants, and to prevent any hybridization from the visits of insects, I protected them with glass during the early part of their flowering. The season was particularly favourable for ripening the seed, and when I came to collect I found a considerable quantity.

To prevent all errors as much as possible, I collected the seed myself, and again sowed it on beds, where no *Primulæ* had been previously grown. These I again planted out, and this year most of them have flowered, and here are the particulars.

Primula veris seed produced nearly eight hundred plants, but only four hundred and seventy-three were planted out for observation, and these may be characterized as under.

<i>Primula veris</i> , true	....	....	....	412
<i>P. veris</i> , var. <i>major</i> (L. C.)	....	....	....	27
Do. do. hose-in-hose	....	....	....	3
<i>P. veris</i> , dark-coloured	....	....	....	7
Do. approaching polyanthus	....	....	....	5
Do. do. hose-in-hose	....	....	....	1
No flowers	....	....	....	18

473 Total.

Primula veris, var. *major*, produced sixty-five plants, of which the subjoined list gives the particulars.

<i>P. veris</i> , var. <i>major</i>	....	....	....	21
<i>P. veris</i> (true)	....	....	....	9
Polyanthus of different shades	....	....	....	16
Do. hose-in-hose	....	....	....	3
Do. with leafy calyx	....	....	....	1
<i>P. vulgaris</i> , var. <i>intermedia</i> (L. C.)	....	....	....	7
<i>P. vulgaris</i> , var. <i>caulescens</i> (?)	....	....	....	3
<i>P. vulgaris</i>	....	....	....	2
<i>P. Jacquinii</i> !	....	....	....	1
No flowers	....	....	....	2

65 Total.

P. vulgaris, var. *intermedia*, L. C., produced twenty-seven, as under.

<i>P. vulgaris</i> , var. <i>intermedia</i>	....	....	19
Do. var. <i>caulescens</i>	....	....	3
<i>P. vulgaris</i> (true)	....	....	1
No flowers	....	....	4
			—
			27 Total.

P. vulgaris produced eighteen, as under.

<i>P. vulgaris</i>	....	....	15
Do. var. <i>caulescens</i>	....	....	1
No flowers	....	....	2
			—
			18 Total.

P. Jacquinii produced thirty-two, as under.

<i>P. Jacquinii</i>	....	....	24
<i>P. vulgaris</i>	....	....	1
Do. var. <i>caulescens</i>	....	....	1
No flowers	....	....	6
			—
			32 Total.

Such are the results of my experiments, which I must own disappointed me greatly, and interfered very materially with my previous ideas of specific identity: we have certainly no direct change from the primrose to the cowslip, or the reverse, but we have the change in two steps, first, from the *P. veris* to *P. veris*, var. *major*, and then from that to *P. vulgaris*, and however unwillingly acknowledged, such transition appears really to take place. The change in *P. Jacquinii* surprised me much, as I had not heard of its altering in form, and my previous experiment only went to prove the contrary.

I have now a large number of seedlings of this year's growth, for the purpose of carrying on the investigation; for the present I shall say no more, but leave the above facts to speak for themselves.

JOSEPH SIDEBOTHAM.

Manchester, October 3, 1849.

Blight on Oak Trees. By the Rev. W. T. BREE, M.A.

THERE has been during the present year all about this neighbourhood a sort of blight upon many of the oak trees, in consequence of which the foliage turned colour at an unusually early period of the season. By the middle of August or before, I observed that many oaks had assumed as brown and autumnal an appearance as they commonly present at the end of October or early in November. The blight was partial only, affecting some trees, but not others. It did not appear to depend on the age or vigour of the tree, or on soil or situation. Both large and small oaks, old and young, thriving and those in decay, in sheltered as well as exposed situations, in woods and in hedge-rows, were alike subject to the disease. I have heard this premature decay of the foliage attributed to honey dew; but that can hardly have been the case; for it was common to see two oaks growing side by side and in close contact, in the same hedge-row or wood, one of which was turned to a rich brown or yellow, while the other remained in full verdure of foliage. On examining the individual leaves, they were found to be marked with irregular brown or yellow blotches, principally at the apex and the lobes round the extremities, rather than at the base of the leaf. I did not observe that the blighted leaves presented any other peculiarity, or that they had been subject to the attacks of insects (galls, oak-spangles, &c.) to a greater extent than those leaves which were in a healthy condition, and retained their usual verdure. Has the same blight made its appearance in other parts of the country as well as in Warwickshire? I may remark also, that with the exception of such trees as had been more or less stripped of their leaves by the grub in the spring and part of the summer (in which case nature invariably makes an effort to repair the loss by throwing out fresh leaves and shoots later in the season), the oaks generally have made hardly any Midsummer shoot this summer. Many thriving young oaks on the premises here, which usually make a most vigorous Midsummer shoot of a foot or more in length, have this year made next to none. I apprehend that the present year will have proved a very unfavourable one for the growth of oak timber, and that the concentric annual ring of wood representing the year 1849, will be found to be of remarkably contracted dimensions.

W. T. BREE.

Allesley Rectory, near Coventry,
October 10, 1849.

Botanical Notes for 1849. By G. S. GIBSON, Esq., F.L.S.

I HAD hoped that some one else might have furnished the 'Phytologist' with a notice respecting some discoveries of the present year, but as this has not been hitherto done, and it seems desirable that they should be recorded in its pages, for the information of botanists generally, I shall briefly describe those which have come under my observation. The first to which I refer is the occurrence of *Poterium muricatum* of Spach, *P. polygamum* of Waldstein, in the neighbourhood of Cambridge, in two different places, discovered by gentlemen in that district. Only a few specimens of it were seen, and being subsequently cut down, there was little opportunity of making observations upon it. Soon afterwards, having been informed of the discovery, I met with it in a gravel-pit at Heydon, in this county, and subsequently on grassy places by the road-side, for some distance; I also found it in plenty in a field of saintfoin, in this parish, and my friend T. Bentall informs me that he has gathered it in a field of the same plant near Halstead, which might have tended to throw some doubt on its being native, had not the Heydon locality been free from suspicion, and quite satisfactory to several of our best British botanists, who visited the spot. It is possible it may, nevertheless, have been introduced in some places, but it is very unlikely that a foreign plant should be found simultaneously in so many different places and varying circumstances. A short time after, I again met with it on Boxhill, when searching for another plant, as will presently appear, and I believe it has been found in Warwickshire; so that it will probably prove not a rare plant in chalky and limestone districts. It is likely to be overlooked for *P. Sanguisorba*, which it much resembles, though doubtless quite distinct. The following are some of the prominent differences between the two plants:—

Fruit of *P. muricatum* large, strongly winged, with its surface pitted, and the elevated margins of the pits dentate. In *P. Sanguisorba* the fruit is small, angular, but scarcely winged, reticulate-rugose, but not pitted. The calyx of the former is larger and more spreading; the heads are much heavier, perfecting more seeds. The leaves are generally more coarsely serrated, and the whole plant stronger. The hermaphrodite character of the central flowers is insisted on by some authors, but it is not very constant or certain.

The locality is generally cultivated or waste ground.

In another part of the parish of Heydon, I was much surprised and pleased to meet with *Melampyrum arvense* in considerable abundance,

in a field of tares, whether native or introduced with seed at some time, I am unable to say, but as that part of the country has not been much explored, it is not unlikely that it may be as indigenous there as in Norfolk. *Thesium linophyllum*, *Alsine tenuifolia*, *Orobanche elatior*, *Papaver hybridum*, *Melilotus arvensis*, *Fumaria parviflora* or *Vaillantii*, and other rare plants also grow here. As regards the latter, I very much doubt whether we have two British species under these names, and incline to think that all the specimens will be found alike, but to which species they are to be referred I am unable to say, not having foreign specimens with which to compare them. The plant, which is not uncommon in this neighbourhood, agrees more nearly in leaves and fruit with the figure of *F. parviflora* in 'English Botany,' than with that of *F. Vaillantii*. *Melilotus arvensis* appears to be rather the commoner species of the two in this district, and it is also common about Stortford; I do not notice that they are either of them confined to any particular situations, being found indiscriminately intermixed. It is rather surprising that there is no record of its having been more generally observed this year.

I mentioned in a former paper, having made an unsuccessful expedition last year to Boxhill, in search of *Teucrium Botrys*, which was reported to grow there; but being invited by my friend W. Borrer to accompany him in a fresh search this season, I gladly accepted the proposal, and after some time spent in examining the spot, we succeeded in finding it there, and scattered along the stony sides of the hill for some distance, and most indubitably wild. Though not in great abundance, there were a considerable number of specimens, and it is remarkable that a plant by no means inconspicuous should have so long escaped observation, in a place so much frequented, though this part may be rather secluded. It is a very interesting addition to the British Flora, but is scarcely likely to be confined to so small a space, and has been reported to have been found in another place, though not on very good authority.

In a corn-field near the hill we also gathered *Anagallis cærulea*, *Ajuga Chamæpitys*, *Lathyrus Nissolia*, *Bromus arvensis*, &c. The latter, though probably introduced, has been found in so many places, that it surely deserves a place in the British Flora, more than many corn-field and other plants which are always considered to be naturalized; but in the 'Manual' it is put in brackets, and in the 'London Catalogue' classed with the excluded species.

G. S. GIBSON.

Saffron Walden, October, 1849.

Notes on the rarer Ferns observed in a fortnight's Pedestrian Tour in North Wales; with several new Localities for Asplenium lanceolatum. By WILLIAM BENNETT, Esq.

WE arrived at the small town of Builth, in Brecknockshire, one evening about the beginning of last month. A few minutes after five the next morning found us crossing the bridge over the Wye into Radnorshire. The road to Rhayader keeps the course of the river, now reduced to a mountain torrent. Polypodium Phegopteris was first observed on some rocks on the right of the road to the posting hamlet of Llangurig, about three miles out of Rhayader. Our intention was to have crossed Plinlimmon to Machynlleth, but his highness had by this time put on a threatening aspect, and was now completely enveloped in mountain mist, so as to render the attempt indiscreet, if not impracticable to strangers, as well as useless in point of scenery and enjoyment. So after holding a few minutes' council, we determined to keep the high road, and deviate to the Devil's Bridge, in South Wales, which proved as well; for within an hour the clouds began to come down, first as gentle rain, and then increasing steadily to a thorough wet evening, swelling the watercourses we had to cross on a part of this road to a degree of inconvenience. Polypodium Phegopteris beautifully covers a wall on the right, just through the Yspitty Cynfen gate, after leaving the main road to Aberystwith, two miles before the Devil's Bridge.

The ferns of this charming locality are too well known to admit of discovering anything new. The evening had likewise gained upon us, and it was very wet. We were satisfied with visiting one of the spots for Hymenophyllum, on the Hafod Arms side of the Mynach, which the guide you are obliged to have from the inn, in order to gain access to some of the falls, said the Bishop of Winchester had pronounced to be the best fern of the district, and had called Tunbridgense, but upon examination we find to be Wilsoni. Probably both grow here. Lastrea Oreopteris was the predominant fern seen throughout this day's excursion.

Our walk the next morning extended from the Hafod Arms, direct by a mountain road or track nearly the whole of the way to Machynlleth. Over half way a little stream is crossed, forming the boundary between Cardiganshire and Montgomeryshire, or between South and North Wales. Almost the whole of this tract consists of vast, brown, moory, bare mountain, too wet for Pteris aquilina. We thence pro-

ceeded on the road to Dolgelly, which winds up for a long way among fine woods and picturesque cottages, until it opens out on the summit level, and then plunges down near the head of the solitary lake of Tal-y-Llyn, and ascends once more up a most desolate gorge, of which the perpendicular precipices of Cader Idris form the opposite side. *Polypodium Phegopteris* occurs very plentifully in many stations, on banks and stone walls, in the three counties of Cardigan, Montgomery and Merioneth, included in this day's journey.

From Dolgelly to Barmouth is a splendid walk. On the wall of the embankment, just over the bridge across the Maw, was noticed a single plant of *Ceterach officinarum*, by no means a common fern in Wales. As we knew we were approaching the famous locality for *Asplenium lanceolatum*, and never having seen this fern in a natural habitat, we commenced searching every hole, wall, bridge, and rock, and closely examining amongst the innumerable *Adiantum-nigrum*, which was growing luxuriantly all along on both sides of the road. Hundreds of the more attenuated, shrivelled, and odd-looking fronds of the last-named fern fell a sacrifice, alternately fluctuating between hope and despair of identifying the object of our search, till the second mile-stone from Barmouth was passed. Here the road somewhat ascends to round the last promontory that shuts out the view of Barmouth and the open sea beyond. Exactly at the bend of this sweep, on the wall, originally of large, loose stones, that bounds the road on the right, an almost simultaneous shout from each of our party, removed at once all our doubts and fears, and announced the prize. Here was the undoubted *lanceolatum* in abundance, perfectly unmistakeable when once seen, growing intermingled with, but predominant over *Adiantum-nigrum*. It roots very deeply in the holes and fissures amongst the stones, assisted by the length of the stipes, which renders it very difficult to get at perfect, unmutilated fronds. From the dry, sandy nature of the road, the fronds, though large, at this time were covered with dust, and of a shrivelled habit. We again met with it on the high rocks, just before entering the town, as recorded in Newman's 'British Ferns,' p. 251; and much finer and greener, on rocks and walls about the same distance on the other side of the town, towards Harlech. *Polypodium Phegopteris* was seen plentifully, and *Osmunda regalis* at one station, on this walk. The road to Harlech, and thence to Tremadoc, across the ferry of the Traeths, presented nothing fresh to notice.

The following morning was spent in ascending the great rocky eminences, which so romantically overhang the remarkably neat and

pretty Welsh town of Tremadoc. We were gratified in identifying *Asplenium lanceolatum* once more at an elevation of perhaps 700 feet. Though we saw but one single plant, of which a couple of fronds only were gathered, it was sufficient to prove the habitat; and there is little doubt this vast district of wild and lofty rock would amply repay for a longer search, with more time at command.

Our next station was Pwllheli (pronounced *Poo-thel-ly*). Here a narrow neck of land or embankment runs out to a sandy promontory, terminated by an abrupt and very conspicuous rock, altogether forming the western and southern boundary of the harbour. It was twilight when we gained this rock, which is very steep, and inaccessible on the sea-board side. Our attention was immediately attracted by something green in the crevices rather difficult to reach, which, upon pulling out, proved, to our no small delight, to be *Asplenium lanceolatum*, in the very finest condition. The darkness and time did not admit of ascertaining whether it was really plentiful on this rock; but it is a most interesting locality.

The whole of the peninsula round by Aberdaron, and through Nevyn to Carnarvon, produced nothing fresh to record, though the wild portion of the road beneath the great Rivel mountains, and the fine old Abbey Church of Clynnog, which looked as if it might have been covered with something more rare than *Adiantum-nigrum*, appeared particularly attractive and inviting.

From Carnarvon to Bangor, and thence to Conway, was performed by coach and rail, except the detour to visit the stupendous works of the Britannia tubular bridge, which does not belong to the present subject.

One day was spent on Great Ormes Head, searching for *Asplenium marinum* without success. The state of the tide was unfavourable, and after penetrating as far as we well could along the cliffs from the eastward, we returned, ascended the promontory, and came down on the other side; and then kept close along the shore until the north-western point was rounded, and we found ourselves among that sort of grand debris, precisely similar to the magnificent scenery of Fairhead on the coast of Antrim, minus the basaltic formation, among which *Asp. marinum* grows so luxuriantly. We proceeded as far as we dared, scrambling among the rocks and ruins as it were of one of the ends of the world, for ever defying the unimpenetrable waves, till the red ball of the setting sun dipped itself in ocean, and warned us reluctantly to return.

In the old trench outside the wall of Conway grows a curious va-

riegated variety of *Polystichum angulare*. On the walls of the fine old castle itself we found nothing new; though it looks as if *Asplenium marinum* might as well take up its abode there as not, if inhabiting the neighbourhood.

The next morning was occupied with the walk up the Vale of Conway. Of course *Asplenium septentrionale* was the grand object on approaching Llanrwst. We thought we identified the exact spot described at page 270 of Newman's 'British Ferns,' where that gentleman once found it in such profusion. At first we feared our unpractised eyes had missed it, never having seen this interesting little fern in a native habitat, for after much patient searching, and tracing and re-tracing our steps, we had been unable to detect anything of it; but we afterwards came to the conclusion that some "piratical botanist" passing that way must probably have destroyed it all: for on a wall in another road, somewhat further, leading to Capel Curig, one of our party in advance pounced upon a single plant, which was borne off in triumph, after all had been called to see it growing, and was sufficient to convince us that we had hardly passed it before. There was no doubt more about that spot, had we had time to continue the search. The day closed at Capel Curig.

Assisted by the very kind and graphic instructions of Professor Ramsay, whom we fortunately met at this hotel, pursuing his geological researches, the next morning found us at the head of Llyn Idwell, and "making bold for the wall of rocks" that closes up the vast hollow of Cwm Idwell, except the great chasm or rift called Twll Du. *Polypodium Phegopteris* and *Dryopteris*, *Asplenium viride*, *Allosorus crispus*, *Cystopteris dentata*, *Hymenophyllum Wilsoni*, with *Lycopodium alpinum*, Selago and Selaginoides, grow in profusion among and beneath the enormous masses of this wilderness of rocks, on which perhaps the sun never shines. But neither here, nor about, nor within the chasm, were we fortunate enough to light upon *Polystichum Lonchitis*. We were not aware at the time of the locality of Llyn-y-Cwn, above the chasm, as a habitat of *Woodsia*. Near the summit of the pass we gathered *Polystichum aculeatum*, a fern by no means commonly seen in Wales, and not once intermingled with *angulare*. After the descent into the Llanberis road, we visited a tier of tall, black rocks, on the left of the road to Capel Curig, a little beyond the turnpike, known as Craig Du; and on which grows a peculiar, simply pinnate form of *Asplenium Ruta-muraria*, which might readily be set down as *germanicum*, but does not agree in any other diagnostic. On an adjacent dry white rock, we found a good supply of *septentrionale*,

which we have reason to believe is tolerably plentiful in these parts, and, fortunately for its preservation, in some places quite inaccessible. For these localities we are indebted to Professor Ramsay.

The beaten ascent of Snowdon will not do for the botanist. We succeeded in obtaining a guide, who was willing to conduct us wherever we wished. We first proceeded to a lofty precipice, forming one of the western buttresses of Snowdon, called Clowgwyn Du Yrarddu (Clogwyn dur Arddu of the Ordnance Survey). Here, among the rocks and wild *débris*, between the base of the precipice and Llyn Arddu, were all the ferns we had seen in Cwm Idwell, some of them growing, if possible, still more luxuriantly, as *Asplenium viride*, and *Hymenophyllum Wilsoni* of a very large size, and tufts of *Allosorus crispus* almost a yard in diameter. From the constancy of the mountain form of *Cystopteris* met with throughout these regions, perfectly distinct in the form and cutting of the pinnules from the more southern plant we had previously known as *fragilis*, we are inclined to believe in the specific distinctness of *dentata*, which we had before doubted; but have brought home a supply of seedlings to cultivate, the result of which shall be communicated, if successful.

When on the last shoulder, in full sight of the summit, we met one of the older guides coming down, well known for his botanical lore, and especially for his knowledge, said to be exclusive, of the habitat of *Woodsia* in Clogwyn-y-Garnedd. After some chaffering to obtain information, and not without the aid of a little bribery,—for which, however, he promised to transmit us a plant if we did not succeed in finding it,—he brought us back a little to the edge of the ridge, and professed to point out the exact spot where the *Woodsia* grew, far down amid a world of rocks and precipices. All the time we did not think he meant us to find it. The absurdity of identifying by description from above one particular wet rock, when down amongst such a chaos of rocks and precipices, was apparent enough. We were determined, however, not to fail for want of trying; and luck might come in to aid. So down the Capel Curig track we went, and then deviated to the right, to get under the precipice constituting Clogwyn-y-Garnedd. It is almost needless to say, that after a tremendous scramble we had to give up the *Woodsia*; but were sufficiently rewarded by capturing several plants of *Polystichum Lonchitis*, and saw some still finer ones in places inaccessible. It is a great treat to see this truly splendid and weird-looking fern, evidently framed to brave, under its weather-beaten form, the storms of its native mountains. After rounding the little Llyn Glas below, we had to ascend the tremendous

Bwlch-y-Lacthan, to the summit, just before sunset. Here we found that the guides who are stationary at the top, having erected booths, where parties who wish to see the sun rise may now sleep, that is, lay miserably awake, had *Lonchitis* for sale at sixpence a root; a practice which, if encouraged, must soon annihilate this fine and sparingly scattered fern from all accessible habitats. They knew nothing of *Woodsia*. Since returning home, the guide, faithful to his promise, has sent by post a small root, and some fronds of a true *Woodsia*, but unfortunately so mutilated that we cannot satisfactorily determine the species.

We had bad weather at Beddgelert, which prevented our searching that interesting neighbourhood. We again had the pleasure of seeing *Asplenium lanceolatum*, at the station just half way between Beddgelert and Tan-y-bwlch. The county, however, requires correction, as stated in Newman's 'Ferns,' p. 249, being Merionethshire, not Carnarvonshire. The rock is here a slate, and the fern grows very firmly wedged in the fissures, wherever a little soil has been caught. On this rock also grows a simply pinnate form of *Asplenium Ruta-muraria*.

There is a pretty waterfall in the grounds of Tan-y-bwlch house, which are liberally thrown open to visitors with a card from the inn. The rocks and banks are covered with the most magnificent clothing of *Polypodium Phegopteris*, rejoicing in the spray. This fern must be seen in such a locality to form any just notion of its grace and beauty, and the size to which it attains, as compared with its dwarfed appearance occurring on walls and drier habitats.

We again met with *Polypodium Phegopteris* in all its pride and profusion, at the fine and romantic falls of the Cynvael, near Festiniog. The river forms a series of continuous cataracts for a mile or more, along which this fern carries the preponderance over all others. Opposite Huw Llwyd's Pulpit, a rock which steens one part of the cataract, we observed a patch of *Hymenophyllum* on the face of a rock, but out of reach, the waters being swollen, and too far off to distinguish which species, but probably *Wilsoni*, or perhaps both intermixed, as they are recorded to grow in this celebrated vale. Also a noble root of *Osmunda regalis*.

Polypodium Dryopteris was noticed on the old road half way between Bala and Corwen, on a bank on the right; and again sparingly on the rocks a little before entering Llangollen. *Equisetum sylvaticum* occurs near the first named station. We left Wales by the Llangollen-road railway station.

It will be seen by the extent of ground covered, nearly all on foot,

that this excursion must have been a very rapid one, affording little time to dwell anywhere. Much more would no doubt have been observed by practised eyes, with more leisure to investigate. The commoner ferns have not been mentioned in course, in order not to encumber this paper. The following is a complete list of all we noticed, in the order of their abundance, as agreed upon by our party of three, and as we happened to observe them throughout the whole journey.

- | | |
|------------------------------|------------------------------|
| 1. Athyrium Filix-fœmina | 14. Cystopteris dentata |
| 2. Lastrea Oreopteris | 15. Asplenium viride |
| 3. Pteris aquilina | 16. Polypodium Dryopteris |
| 4. Lastrea Filix-mas | 17. Polystichum angulare |
| 5. „ multiflora | 18. Asplenium lanceolatum |
| 6. Polypodium Phegopteris | 19. Hymenophyllum Wilsoni |
| 7. Lomaria Spicant | 20. Asplenium septentrionale |
| 8. Asplenium Adiantum-nigrum | 21. Polystichum aculeatum |
| 9. Polypodium vulgare | 22. Osmunda regalis |
| 10. Scolopendrium vulgare | 23. Lastrea spinosa |
| 11. Allosorus crispus | 24. Ceterach officinarum |
| 12. Asplenium Trichomanes | 25. Polystichum Lonchitis |
| 13. „ Ruta-muraria | |

W. BENNETT.

October 12, 1849.

Occurrence of Poterium muricatum in Warwickshire.

By THOMAS KIRK, Esq.

THIS recent addition to the British Flora occurs in various places on the slopes of the Coventry and Leamington railway. It is abundant near the Leamington station, and is more or less plentifully distributed at short intervals, till within two miles of Coventry; when it becomes a scarce plant. It also occurs in a field adjoining the Kenilworth station.

The stems appear to me rather more angular than those of *P. San-guisorba*, from which, notwithstanding its close resemblance, it is readily distinguished by the alate angles and deeply pitted sides of the fruit. I believe it is considered identical with the Hungarian *P. polygonum* of Waldstein and Kitaibel, but at present some doubt exists on that point.

Its discovery in counties so widely distant as Essex and Warwick, is an argument in favour of the probability of its frequent occurrence;

more especially as its close similitude to *P. Sanguisorba* is doubtless the cause of its having been so long overlooked in this country.

T. KIRK.

Coventry, October 16, 1849.

Note on a List of Newbury Plants. By MRS. RUSSELL.

ON reading in the September number of the 'Phytologist' Dr. Bromfield's interesting paper on the plants of Hampshire, to the continuation of which in each succeeding number I always look forward with pleasure, I found, in a note, some criticisms on a list of plants in the neighbourhood of Newbury, touching which I would offer a few remarks. The list was chiefly drawn up by myself, at the request of a relation residing in the place, and with few exceptions comprised only such plants as I had seen with my own eyes, or had his authority for. On receiving a printed copy of the list, I was vexed to perceive that sundry additions had been made to it, for the correctness of which I had no means of vouching, although Mr. Job Lonsley, on whose authority they were principally made, is, I understand, an acute and zealous observer. I cannot wonder at Dr. Bromfield feeling staggered by the insertion of such plants as *Illecebrum verticillatum* and the others mentioned in his note, and feeling assured, as I do, of the *general* correctness of the list, I am anxious to ascertain that of these apparently doubtful admissions. On a very recent visit of a day or two to Newbury, I was promised an interview with Mr. Lonsley, but it was prevented by his illness: I still hope, however, through my friends there, to obtain the information I desire, and specimens of the plant which he considers to be the species in question. With regard to *Cnicus heterophyllus*, the error lies with me only; the plant is, as Dr. Bromfield supposes, *C. pratense*, but at the time I drew up the list was mistaken by me for its kindred species, which I had not then seen. I may take this opportunity of saying that Sidmonton, the locality given for *Doronicum pardalianches*?, is certainly in Hampshire: I gathered the plant there many years ago, but cannot now feel certain as to which of the two species it really is: it is to all appearance wild. Dr. Bromfield does not mention *D. pardalianches* as a Hampshire plant, and speaks doubtfully as to *D. plantagineum*: one of the two most assuredly grows at Sidmonton.

ANNA RUSSELL.

Kenilworth, October 19, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, November 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

‘Proceedings of the Literary and Philosophical Society of Liverpool during the Thirty-seventh Session;’ presented by that Society. ‘Parts 1 and 2 of Volume i, of Transactions of the Royal Society of Arts and Sciences of Mauritius;’ presented by that Society. ‘On the Destructive Power of the Scolitus destructor and Larva of the Cossus ligniperda,’ by Dr. C. J. Cox; presented by the Royal Botanic Society of London. ‘Pharmaceutical Journal and Transactions;’ presented by the Pharmaceutical Society.

British plants from Mr. G. S. Gibson, Mr. B. Wardale, Mr. F. R. Goulding, Mr. T. Moore, Rev. F. Douglas, Mrs. E. M. Jones, Mr. J. Wynne, Mr. R. Embleton, and Mr. Wing.

Mr. W. Evans, of Llanrwst; and Mr. E. Browne, of Burton-on-Trent, were elected corresponding members.

Mr. Thomas Moore communicated a paper ‘On Dr. Dickie’s Cystopteris.’—*G. E. D.*

Notice of ‘Foot-prints of the Creator: or the Asterolepis of Stromness.’ By HUGH MILLER, Author of ‘The Old Red Sandstone,’ &c. London: Johnstone and Hunter, 26, Paternoster Row; and 15, Princes Street, Edinburgh. 1849.

ABOUT nine years ago geologists were “taken aback” by the sudden appearance of a colleague, whose discoveries in the Old Red Sandstone, a deposit previously looked upon as singularly barren of fossil organic remains, opened up a new field to the investigations of the scientific, and developed facts of so wonderful and unlooked for a nature, that their discovery rendered necessary the abandonment, or at least the modification, of many a long-cherished hypothesis, and gave a new aspect to several portions of the existing systems of Geology. These discoveries received the commendation they richly deserved, from some of our most eminent geologists at the Meeting of the British Association in September, 1849; and their author, Mr. Hugh Miller, at once took the highest position among the learned, both as an original

investigator, and as an able and graphic describer of the results of his labours.

It was no light praise for such men as Murchison and Buckland to bestow upon the literary productions of a quarryman, the one, to speak of them as being "written in a style so beautiful and poetical, as to throw plain geologists like himself into the shade;" and the other, to declare that they made him feel ashamed "of the comparative meagerness and poverty of his own descriptions in the 'Bridgewater Treatise,' which had cost him hours and days of labour." Dr. Buckland further observed, that if Providence were pleased to spare the useful life of Mr. Miller, "he, if any one, would certainly render the science attractive and popular, and do equal service to Theology and Geology;" positions which have been fully borne out by the character of Mr. Miller's subsequently published volumes—'The Old Red Sandstone,' 'First Impressions of England and its People,' and more especially perhaps in his latest child, 'Foot-prints of the Creator.'

Mr. Miller has from the beginning been the uncompromising opponent of the Lamarckian theory of *progression*. Even in his work on the 'Old Red Sandstone,' published before the appearance of the 'Vestiges of Creation,' he exposes the fallacies and controverts the so-called facts of the hypothesis upon which the author of that volume builds his ingenious but most unstable edifice. In his latest publication he lashes with no unsparing hand the errors of the 'Vestiges,' and indicates the serious mischief to which an unchecked dissemination of those errors must inevitably lead, among a certain class of readers, who, in proportion as they are unable to detect the fallacies of such a work, are exposed to all the evil consequences of their promulgation. In doing this, however, Mr. Miller is careful to distinguish the mischief he is combating from the, perhaps unconscious, author of the mischief—he fights with the *book*, not with the *man* who wrote it. "I have not even felt," he says in his Preface, "as if I had a man before me as an opponent; for though my work contains numerous references to the author of the 'Vestiges,' I have invariably thought on these occasions, not of the anonymous writer of the volume, of whom I know nothing, but simply of an ingenious, well-written book, unfortunate in its facts, and not always happy in its reasonings."

We have thought that our readers would be gratified by such extracts from the 'Foot-prints' as exhibit purely phytological objections to the Vestigian hypothesis of development. We use the term *Vestigian* advisedly, as being more intelligible, or at all events more popu-

lar than *Lamarckian*; especially as the author of the 'Vestiges' has so ingeniously modified and remodelled the views of the older writer as to have made them in great measure his own.

Mr. Miller opens his volume with an interesting description of a visit to Orkney two years back, "while engaged in prosecuting the self-imposed task of examining in detail the various fossiliferous deposits of Scotland," in the hope of ultimately acquainting himself with them all. On this visit he resided for some time in the vicinity of Stromness. This town stands *at the bottom* of the upturned geological deposits of the island of Orkney. "The geology of the island," says the author, "owes its chief interest to the immense development which it exhibits of one formation,—the Lower Old Red Sandstone,—and to the extraordinary abundance of its vertebrate remains;" so abundant indeed are the ichthyolites of the formation at this particular locality, that, as the author observes, were the trade once fairly opened, these remains could be thence supplied, by the ton and by the shipload, to the museums of the whole world.

We need not be detained by the author's geological explorations of this district, interesting as they are, since our business is with the botanical portion of his volume; suffice it here to say that he was rewarded in his researches on the first evening of his sojourn at Stromness, by the discovery of their principal object, in the form of a well-marked bone, probably the oldest vertebrate remain yet discovered in Orkney, imbedded in a grayish coloured layer of hard flag, and in form closely resembling a large roofing-nail, which he figures, as we believe, for the first time. "This nail-like bone formed a characteristic portion of the *Asterolepis*,—so far as is yet known the most gigantic ganoid of the Old Red Sandstone, and, judging from the *place* of the fragment, one of the first."

Passing over the reflections to which the discovery of this interesting fragment *in situ* naturally give rise, we will now accompany him to another locality, as interesting to the botanist as the more immediate vicinity of Stromness is to the palæontologist.

"I extended my researches, a few days after, in an easterly direction from the town of Stromness, and walked for several miles along the shores of the Loch of Stennis,—a large lake about fourteen miles in circumference, bare and treeless, like all the other lakes and lochs of Orkney, but picturesque of outline, and divided into an upper and lower sheet of water by two low, long promontories, that jut out from opposite sides, and so nearly meet in the middle as to be connected by a thread-like line of road, half mound, half bridge. 'The Loch

of Stennis,' says Mr. David Vedder, the sailor-poet of Orkney, 'is a beautiful Mediterranean in miniature.' It gives admission to the sea by a narrow straight, crossed, like that which separates the two promontories in the middle, by a long rustic bridge; and, in consequence of this peculiarity, the lower division of the lake is salt in its nether reaches and brackish in its upper ones, while the higher division is merely brackish in its nether reaches, and fresh enough in its upper ones to be potable. Viewed from the east, in one of the long, clear, sunshiny evenings of the Orkney summer, it seems not unworthy the eulogium of Vedder. There are moory hills and a few rude cottages in front; and in the background, some eight or ten miles away, the bold, steep mountain masses of Hoy; while on the promontories of the lake, in the middle distance, conspicuous in the landscape, from the relief furnished by the blue ground of the surrounding waters, stand the tall gray obelisks of Stennis,—one group on the northern promontory, the other on the south,—

‘ Old even beyond tradition’s breath.’

“ The shores of both the upper and lower divisions of the lake were strewed, at the time I passed, by a line of *wrack*, consisting, for the first few miles from where the lower loch opens to the sea, of only marine plants, then of marine plants mixed with those of fresh-water growth, and then, in the upper sheet of water, of lacustrine plants exclusively. And the fauna of the loch is, I was informed, of as mixed a character as its flora,—the marine and fresh-water animals having each their own reaches, with certain debateable tracts between, in which each kind expatiates with more or less freedom, according to its specific nature and constitution,—some of the sea-fish advancing far on the fresh-water, and others, among the proper denizens of the lake, encroaching far on the salt. * * * But the change induced in the two floras of the lake,—marine and lacustrine,—is considerably more palpable and obvious than that induced in its two faunas. As I passed along the strait, through which it gives admission to the sea, I found the commoner fucoids of our sea-coasts streaming in great luxuriance in the tideway, from the stones and rocks of the bottom. I marked, among the others, the two species of kelp-weed, so well known to our Scotch kelp-burners,—*Fucus nodosus* and *F. vesiculosus*,—flourishing in their uncurtailed proportions; and the not inelegant *Halydrys siliquosa*, or ‘ tree in the sea,’ presenting its amplest spread of pod and frond. A little farther in, *Halidrys* and *Fucus nodosus*

disappear, and *Fucus vesiculosus* becomes greatly stunted, and no longer exhibits its characteristic double rows of bladders. But for mile after mile it continues to exist, blent with some of the hardier *Confervæ*, until at length it becomes as dwarfish and nearly as slim of frond as the *Confervæ* themselves; and it is only by tracing it through the intermediate forms that we succeed in convincing ourselves that, in the brown stunted tufts of from one to three inches in length, which continue to fringe the middle reaches of the lake, we have in reality the well-known *Fucus* before us. Rushes, flags, and aquatic grasses may now be seen standing in diminutive tufts out of the water; and a terrestrial vegetation at least continues to exist, though it can scarcely be said to thrive, on banks covered by the tide at full. The lacustrine flora increases, both in extent and luxuriance, as that of the sea diminishes; and in the upper reaches we fail to detect all trace of marine plants: the *Algæ*, so luxuriant of growth along the straits of this ‘miniature Mediterranean,’ altogether cease; and a semi-aquatic vegetation attains, in turn, to the state of fullest development anywhere permitted by the temperature of this northern locality. A memoir descriptive of the Loch of Stennis and its productions, animal and vegetable, such as old Gilbert White of Selborne could have produced, would be at once a very valuable and curious document, important to the naturalist, and not without its use to the geological student.

“I know not how it may be with others; but the special phenomena connected with Orkney that most decidedly bore fruit in my mind, and to which my thoughts have most frequently reverted, were those exhibited in the neighbourhood of Stromness. I would more particularly refer to the characteristic fragment of *Asterolepis*, which I detected in its lower flag-stones, and to the curiously mixed, semi-marine, semi-lacustrine vegetation of the Loch of Stennis. Both seem to bear very directly on that development hypothesis,—fast spreading among an active and ingenious order of minds, both in Britain and America, and which has been long known upon the Continent,—that would fain transfer the work of creation from the department of miracle to the province of natural law, and would strike down, in the process of removal, all the old landmarks, ethical and religious.”—p. 9.

Before we introduce to the notice of the reader the author’s ingenious application of the above facts to the development hypothesis, let us accompany him on a more extended tour of observation, wherein we shall find that the boundary line between the vegetation of land and water, so clearly defined upon the shores of the Loch of Stennis, as distinctly separates the marine and littoral floras of the

sea-coasts of our island home. Reverting to his former observations, the author thus introduces the subject:—

“ What does experience say regarding the transmutative conversion of a marine into a terrestrial vegetation,—that experience on which the sceptic founds so much? As I walked along the green edge of the Lake of Stennis, selvaged by the line of detached weeds with which a recent gale had strewed its shores, and marked that for the first few miles the accumulation consisted of marine Algæ, here and there mixed with tufts of stunted reeds or rushes, and that as I receded from the sea it was the Algæ that became stunted and dwarfish, and that the reeds, aquatic grasses, and rushes, grown greatly more bulky in the mass, were also more fully developed individually, till at length the marine vegetation altogether disappeared, and the vegetable *débris* of the shore became purely lacustrine,—I asked myself whether here, if anywhere, a transition flora between lake and sea ought not to be found? For many thousand years ere the tall gray obelisks of Stennis, whose forms I saw this morning reflected in the water, had been torn from the quarry, or laid down in mystic circle on their flat promontories, had this lake admitted the waters of the sea, and been salt in its lower reaches and fresh in its higher. And during this protracted period had its quiet, well-sheltered bottom been exposed to no disturbing influences through which the delicate process of transmutation could have been marred or arrested. Here, then, if in any circumstances, ought we to have had, in the broad permanently brackish reaches, at least indications of a vegetation intermediate in its nature between the monocotyledons of the lake and the Algæ of the sea; and yet not a vestige of such an intermediate vegetation could I find among the up-piled *débris* of the mixed floras, marine and lacustrine. The lake possesses no such intermediate vegetation. As the water freshens in its middle reaches, the Algæ become dwarfish and ill-developed; one species after another ceases to appear, as the habitat becomes wholly unfavourable to it; until at length we find, instead of the brown, rootless, flowerless fucoids and Confervæ of the ocean, the green, rooted, flower-bearing flags, rushes, and aquatic grasses of the fresh water. Many thousands of years have failed to originate a single intermediate plant. And such, tested by a singularly extensive experience, is the general evidence.

“ There is scarcely a chain-length of the shores of Britain and Ireland that has not been a hundred and a hundred times explored by the botanist,—keen to collect and prompt to register every rarity of the vegetable kingdom; but has he ever yet succeeded in transfer-

ring to his herbarium a single plant caught in the transition state? Nay, are there any of the laws under which the vegetable kingdom exists better known than those laws which fix certain species of the Algæ to certain zones of coast, in which each, according to the overlying depth of water and the nature of the bottom, finds the only habitat in which it can exist? The rough-stemmed tangle (*Laminaria digitata*) can exist no higher on the shore than the low line of ebb during stream-tides; the smooth-stemmed tangle (*L. saccharina*) flourishes along an inner belt, partially uncovered during the ebbs of the larger neaps; the forked and cracker kelp-weeds (*Fucus serratus* and *F. nodosus*) thrive in a zone still less deeply covered by water, and which even the lower neaps expose. And at least one other species of kelp-weed, the *Fucus vesiculosus*, occurs in a zone higher still, though, as it creeps upwards on the rocky beach, it loses its characteristic bladders, and becomes short and narrow of frond. The thick brown tufts of *Fucus canaliculatus*, which in the lower and middle reaches of the Lake of Stennis I found heaped up in great abundance along the shores, also rises high on rocky beaches,—so high in some instances, that during neap tides it remains uncovered by the water for days together. If, as is not uncommon, there be an escape of land-springs along the beach, there may be found, where the fresh water oozes out through the sand and gravel, an upper terminal zone of the Confervæ, chiefly of a green colour, mixed with the ribbon-like green laver (*Ulva latissima*), the purplish-brown laver (*Porphyra laciniata*), and still more largely with the green silky Enteromorpha (*E. compressa*). And then, decidedly within the line of the storm-beaches of winter,—not unfrequently in low sheltered bays, such as the Bay of Udale or of Nigg, where the ripple of every higher flood washes,—we may find the vegetation of the land,—represented by the sentinels and picquets of its outposts,—coming down, as if to meet with the higher-growing plants of the sea. In salt marshes the two vegetations may be seen, if I may so express myself, *dovetailed* together at their edges,—at least one species of club-rush (*Scirpus maritimus*) and the common salt-wort and glass-wort (*Salsola Kali* and *Salicornia procumbens*), encroaching so far upon the sea as to mingle with a thinly-scattered and sorely-diminished *Fucus*,—that bladderless variety of the *Fucus vesiculosus* to which I have already referred, and which may be detected in such localities, shooting forth its minute brown fronds from the pebbles. On rocky coasts, where springs of fresh water come trickling down along the fissures of the precipices, the observer may see a variety of *Rhodomenia palmata*,—

the fresh-water dulse of the Moray Frith,—creeping upwards from the lower limits of production, till just where the common gray *Balanus* ceases to grow. And there, short and thick, and of a bleached yellow hue, *it* ceases also; but one of the commoner marine *Confervæ*,—the *Conferva arcta*, blent with a dwarfed *Enteromorpha*,—commencing a very little below where the dulse ends, and taking its place, clothes over the runnels with its covering of green for several feet higher: in some cases, where it is frequently washed by the upward dash of the waves, it rises above even the flood-line; and in some crevice of the rock beside it, often as low as its upper edge, we may detect stunted tufts of the sea-pink or of the scurvy-grass. But while there is thus a vegetation intermediate *in place* between the land and the sea, we find, as if it had been selected purposely to confound the transmutation theory, that it is in no degree intermediate in character. For, while it is chiefly marine weeds of the lower division of the *Confervæ* that creep upwards from the sea to meet the vegetation of the land, it is chiefly terrestrial plants of the higher division of the dicotyledons that creep downwards from the land to meet the vegetation of the sea. The salt-worts, the glass-worts, the *Arenaria*, the thrift, and the scurvy-grass, are all dicotyledonous plants. Nature draws a deeply-marked line of division where the requirements of the transmutative hypothesis would demand the nicely graduated softness of a shaded one; and, addressing the strongly marked floras on either hand, even more sternly than the waves themselves, demands that to a certain definite bourne should they come, and no farther.”—p. 240.

Turning now to the chapter upon the “Lamareckian Hypothesis of the Origin of Plants” and its consequences, we find the discovery of a new animal organism in the lowest member of a geological group, and the flora of Stennis and its shores, thus applied:—

“I have said that the curiously-mixed, semi-marine, semi-lacustrine flora of the Lake of Stennis became associated in my mind, like the ancient *Asterolepis* of Stromness, with the development hypothesis. The fossil, as has been shown, represents not inadequately the geologic evidence in the question,—the mixed vegetation of the lake may be regarded as forming a portion of the phytological evidence.

“‘All life,’ says Oken, ‘is from the sea. Where the sea organism, by self-elevation, succeeds in attaining into form, there issues forth from it a higher organism. Love arose out of the sea-foam. The primary mucus (that in which electricity originates life) was, and is still, generated in those very parts of the sea where the water is in contact with earth and air, and thus upon the shores. The first crea-

tion of the organic took place where the first mountain summits projected out of the water,—indeed, without doubt, in India, if the Himalaya be the highest mountain. *The first organic forms, whether plants or animals, emerged from the shallow parts of the sea.* Maillet wrote to exactly the same effect a full century ago. ‘In a word,’ we find him saying, in his ‘*Telliamed*,’ ‘do not herbs, plants, roots, grains, and all of this kind that the earth produces and nourishes, come from the sea? Is it not at least natural to think so, since we are certain that all our habitable lands came originally from the sea? Besides, in small islands far from the continent, which have appeared but a few ages ago at most, and where it is manifest that never any man had been, we find shrubs, herbs, roots, and sometimes animals. Now, you must be forced to own, either that these productions owed their origin to the sea, or to a new creation, which is absurd.’

“It is a curious fact,” continues Mr. Miller, “to which, in the passing, I must be permitted to call the attention of the reader, that all the leading assertors of the development hypothesis have been bad geologists. Maillet had for his errors and deficiencies the excellent apology that he wrote more than a hundred years ago, when the theory of a universal ocean, promulgated by Leibnitz nearly a century earlier, was quite as good as any of the other theories of the time, and when Geology, as a science, had no existence. And so we do not wonder at an ignorance which was simply that of his age, when we find him telling his readers that plants *must* have originated in the sea, seeing that ‘all our habitable lands came originally from the sea;’ meaning, of course, by the statement, not at all what the modern geologist would mean were he to employ even the same words, but simply that there was a time when the universal ocean covered the whole globe, and that, as the waters gradually diminished, the loftier mountain summits and higher table-lands, in appearing in their new character as islands and continents, derived their flora from what, in a universal ocean, could be the only possibly existing flora,—that of the sea. But what shall we say of the equally profound ignorance manifested by Professor Oken, a living authority, whom we find prefacing for the Ray Society, in 1847, the English translation of his ‘*Elements of Physio-philosophy*’? ‘The first creation of the organic took place,’ we find him saying, ‘where the first mountain summits projected out of the sea,—indeed, without doubt, in India, if the Himalaya be the highest mountain.’ Here, evidently, in this late age of the world, in which Geology *does* exist as a science, do we find the ghost of the universal ocean of Leibnitz walking once more,

as if it had never been laid. Is there now in all Britain even a tyro geologist so unacquainted with geological fact as not to know that the richest flora which the globe ever saw had existed for myriads of ages, and then, becoming extinct, had slept in the fossil state for myriads of ages more, ere the highest summits of the Himalayan range rose over the surface of the deep? The Himalayas disturbed, and bore up along with them in their upheaval, vast beds of the oolitic system. Belemnites and ammonites have been dug out of their sides along the line of perpetual snow, seventeen thousand feet over the level of the sea. What in the recent period form the loftiest mountains of the globe, existed as portions of a deep-sea bottom, swum over by the fishes and reptiles of the great secondary period, when what is now Scotland, had its dark forests of stately pine,—represented in the present age of the world by the lignites of Helmsdale, Eathie, and Eigg,—and when the plants of a former creation lay dead and buried deep beneath, in shales and fire-clay,—existing as vast beds of coal, or entombed in solid rock, as the brown massy trunks of Granton and Craigleith. And even ere these last existed as living trees, the coniferous lignite of the Lower Old Red Sandstone found at Cromarty had passed into the fossil state, and lay as a semi-calcareous, semi-bituminous mass, amid perished Dipterians and extinct Coccostei. So much for the Geology of the German Professor. And be it remarked, that the *actualities* in this question can be determined only by the geologist. The mere naturalist may indicate from the analogies of his science, what possibly *might* have taken place; but what really *did* take place, and the true order in which the events occurred, it is the part of the geologist to determine. It cannot be out of place to remark farther, that geological discovery is in no degree responsible for the infidelity of the development hypothesis; seeing that, in the first place, the hypothesis *is greatly more ancient than the discoveries*, and, in the second, that its more prominent assertors are *exactly the men who know least of geological fact*.

“The author of the ‘Vestiges’ is at one, regarding the supposed marine origin of terrestrial plants, with Maillet and Oken; and he regards the theory, we find him stating in his ‘Explanations,’ as the true key to the well-established fact, that the vegetation of groups of islands generally corresponds with that of the larger masses of land in their neighbourhood. Marine plants of the same kinds crept out of the sea, it would seem, upon the islands on the one hand, and upon the larger masses of land on the other, and thus produced the same

flora in each ; just as tadpoles, after passing their transition state, creep out of their canal or river on the opposite baaks, and thus give to the fields or meadows on the right hand a supply of frogs, of the same appearance and size as those poured out upon the fields and meadows of the left.”—p. 219.

Mr. Miller here quotes from the ‘*Vestiges*’ a passage wherein the author of that work, after citing several several striking examples of a correspondence of form in the floras of neighbouring lands, propounds his own hypothesis of “*a spread of terrestrial vegetation from the sea into the lands adjacent,*” as a much “*simpler cause*” of such correspondence than Professor Forbes’s surmise “that the spaces now occupied by the intermediate seas must have been dry land at the time when these floras were created ;” and asserts as a fact, admitting of no dispute, that “the community of forms in the various regions opposed to each other merely indicates a distinct marine creation in each of the oceanic areas respectively interposed, and which would naturally advance into the lands nearest to it, as far as circumstances of soil and climate were found agreeable.” One obvious consequence of a belief in this *simpler* mode of distribution would be the necessity of holding, contrary to all experience, that *dulse* and *hen-ware** became, through a very wonderful metamorphosis, cabbage and spinach ; that kelp-weed and tangle bourgeoned into oaks and willows ; and that *slack*, *rope-weed*, *green raw*† shot up into mangel-wurzel, rye-glass and clover !” Well may we exclaim with our author, “*Simple*, certainly !”—especially as the time allowed by the author of the ‘*Vestiges*’ for the operation of all these marvellous transmutations, whereby “fucoids and confervas became dicotyledonous and monocotyledonous plants,” was so brief that not a single whorl in the shell of *Purpura lapillus* or of *Turritella terebra* was altered during that period, nor did the slightest change occur in the minute projections of the hinges of *Cyprina Islandica* or *Astarte borealis*, or in any of the nicer peculiarities of their muscular impressions.

From the chapter on the evidence afforded by the Silurian molluscs and the fossil flora, we quote a passage relating to the contemporaneous existence of some of the higher forms of vegetation with those of a far lower class, during the carboniferous period of the earth’s history, and the true bearing of this now well ascertained fact upon the development hypothesis, into the service of which has

* *Rhodymenia palmata* and *Alaria esculenta*.

† *Porphyra laciniata*, *Chorda filum*, and *Enteromorpha compressa*.

been pressed the geological history alike of animal and vegetable organisms.

“It is not much more than twenty years since it was held that no exogenous plant existed during the carboniferous period. The frequent occurrence of Coniferæ in the secondary deposits had been conclusively determined from numerous specimens; but, founding on what seemed a large amount of negative evidence, it was concluded that, previous to the liasic age, Nature had failed to achieve a tree, and that the rich vegetation of the coal measures had been exclusively composed of magnificent immaturities of the vegetable kingdom,—of gigantic ferns and club-mosses, that attained to the size of forest trees, and of thickets of the swamp-loving horse-tail family of plants, that well-nigh rivalled in height those forests of masts which darken the rivers of our great commercial cities. Such was the view promulgated by M. Adolphe Brongniart; and it may be well to remark that, so far as the evidence on which it was based was positive, the view was sound. It *is* a fact, that inferior orders of plants were developed in those ages in a style which in their present state of degradation they never exemplify: they took their place, not, as now, among the pigmies and abortions of creation, but among its tallest and goodliest productions. It is, however, *not* a fact that they were the highest vegetable forms of their time. True exogenous trees also existed in great numbers and of vast size. In various localities in the coal-fields of both England and Scotland,—such as Lennel Braes and Allan Bank in Berwickshire, High-Heworth, Felton, Gateshead, and Wideopen near Newcastle-upon-Tyne, and in quarries to the west of the city of Durham,—the most abundant fossils of the system are its true woods. In the quarry of Craigleith, near Edinburgh, three huge trunks have been laid open during the last twenty years, within the space of about a hundred and fifty yards, and two equally massy trunks, within half that space, in the neighbouring quarry of Granton,—all low in the coal measures. They lie diagonally athwart the strata,—at an angle of about thirty,—with the nether and weightier portions of their boles below, like snags in the Mississippi; and we infer, from their general direction, that the stream to which they reclined must have flowed from nearly north-east to south-west. The current was probably that of a noble river, which reflected on its broad bosom the shadow of many a stately tree. With the exception of one of the Granton specimens, which still retains its strong-kneed roots, they are all mere portions of trees, rounded at both ends, as if by attrition or decay; and yet one of these portions

measures about six feet in diameter by sixty-one feet in length ; another, four feet in diameter by seventy feet in length ; and the others, of various thickness, but all bulky enough to equal the masts of large vessels, range in length from thirty-six to forty-seven feet. It seems strange to one who derives his supply of domestic fuel from the Dalkeith and Falkirk coal-fields, that the carboniferous flora could ever have been described as devoid of trees. I can scarce take up a piece of coal from beside my study fire, without detecting in it fragments of carbonized wood, which almost always exhibit the characteristic longitudinal fibres, and not unfrequently the medullary rays. Even the trap rocks of the district inclose, in some instances, their masses of lignite, which present in their transverse sections, when cut by the lapidary, the net-like reticulations of the Coniferæ. The fossil botanist who devoted himself chiefly to the study of microscopic structure would have to decide, from the facts of the case, not that trees were absent during the carboniferous period, but that, in consequence of their having been present in amazing numbers, their remains had entered more palpably and extensively into the composition of coal than those of any other vegetable. So far as is yet known, they all belonged to the two great divisions of the coniferous family, araucarians and pines. The huge trees of Craigleith and Granton were of the former tribe, and approximate more nearly to *Altingia excelsa*, the Norfolk-Island pine,—a noble araucarian, that rears its proud head from a hundred and sixty to two hundred feet over the soil, and exhibits a green and luxuriant breadth of foliage rare among the Coniferæ,—than any other living tree.

“Beyond the coal measures terrestrial plants become extremely rare. The fossil botanist, on taking leave of the lower carboniferous beds, quits the land, and sets out to sea ; and it seems in no way surprising, that the specimens which he there adds to his herbarium should consist mainly of Fucaceæ and Conserveæ. The development hypothesis can borrow no support from the simple fact, that while a high terrestrial vegetation grows upon dry land, only Algæ grow in the sea ; and even did the Old Red Sandstone and Silurian systems furnish, as their vegetable organisms, fucoids exclusively, the evidence would amount to no more than simply this, that the land of the Palæozoic periods produced plants of the land, and the sea of the Palæozoic periods produced plants of the sea.”—p. 185.

The three formations of the Old Red Sandstone—the Upper, the Middle, and the Lower—seem to have had each its own peculiar flora. In the Upper, the only vegetable remains met with appear to

be those of "sorely comminuted fucoids;" the vegetable remains of the Middle, "are at once more numerous and better defined;" but still they are the remains of fucoid plants: while the fossil flora of the Lower Old Red apparently consists of but two species—the one, a plant resembling a *Lycopodium* more than aught else, the other, a smooth-stemmed fucoid. These two plants are figured as fossil impressions upon a block of stone. A third form, however, is given from a unique specimen found in a quarry at Skaill, in Orkney, which greatly resembles a minute dichotomously branched *Botrychium* or *Asplenium*.

Mr. Miller gives a series of magnified figures, variously placed, of the lignite referred to in his work on the 'Old Red Sandstone,' as having been found in that formation at Cromarty. The nodule which inclosed it was imbedded, with many others "half-disinterred by the sea, in an ichthyolitic deposit, a few hundred yards to the east of the town of Cromarty, which occurs more than four hundred feet over the great conglomerate base of the system." The nodule which contained the lignite, contained also some "scales of *Diplacanthus*, a scarce less characteristic organism of the lower formation;" thus its veritable position in the system is unfailingly indicated. A recent and searching microscopic investigation of this interesting lignite has revealed its true character, namely, that of a fragment of fossil coniferous wood, of undoubted araucarian relationship. The following quotation refers to the evidence furnished by this most interesting organic remain.

"The olive leaf which the dove brought to Noah established at least three important facts, and indicated a few more. It showed most conclusively that there was dry land, that there were olive trees, and that the climate of the surrounding region, whatever change it might have undergone, was still favourable to the development of vegetable life. And, farther, it might be very safely inferred from it, that if olive trees had survived, other trees and plants must have survived also; and that the dark muddy prominences round which the ebbing currents were fast sweeping to lower levels, would soon present, as in antediluvian times, their coverings of cheerful green. The olive leaf spoke not of merely a partial, but of a general vegetation. Now, the coniferous lignite of the Lower Old Red Sandstone we find charged, like the olive leaf, with a various and singularly interesting evidence. It is something to know, that in the times of the *Cocco-steus* and *Asterolepis* there existed dry land, and that that land wore, as at after periods, its soft, gay mantle of green. It is something also

to know, that the verdant tint was not owing to a profuse development of the mere immaturities of the vegetable kingdom,—crisp, slow-growing lichens, or watery spore-propagated fungi that shoot up to their full size in a night,—nor even to an abundance of the more highly organized families of the liver-worts and the mosses. These may have abounded then, as now; though we have not a shadow of evidence that they did. But while we have no proof whatever of *their* existence, we have conclusive proof that there existed orders and families of a rank far above them. On the dry land of the Lower Old Red Sandstone, on which, according to the theory of Adolphe Brongniart, nothing higher than a lichen or a moss could have been expected, the ship-carpenter might have hopefully taken axe in hand, to explore the woods for some such stately pine as the one described by Milton,—

‘Hewn on Norwegian hills, to be the mast
Of some great admiral.’”

—p. 200.

The concluding chapter of the volume, that on “Final Causes—Their Bearing on Geologic History,” appropriately commences with Cuvier’s observation, that “Natural History has a principle on which to reason, which is peculiar to it, and which it employs advantageously on many occasions: it is that of the *conditions of existence*, commonly termed *final causes*.” In amplifying on these words, the author well remarks that “in Geology, which is Natural History extended over all ages, this principle has a still wider scope,—embracing not merely the characteristics and conditions of the beings which now exist, but of all, so far as we can learn regarding them, which have ever existed,—and involving the consideration of not merely their peculiarities as races placed before us without relation to time, but also of the history of their rise, increase, decline, and extinction.” To rise, increase, decline, and finally to become extinct, seems to be the lot of all created beings—“all bear the stamp of death,—individuals,—nations,—species.” Geology makes us acquainted with the fact, that “in the course of creation the higher orders succeeded the lower,” but this succession was one of *order*, not of *development*; a higher order of animated organisms would appear to have been successively called into being so soon as the earth became fitted for its reception; and “it is in the style and character of the *dwelling-place* that gradual improvement seems to have taken place,—not in the functions or the ranks of any class of its inhabitants; and it is with special reference to this gradual improvement in our common man-

sion-house, the earth, in its bearings on the 'conditions of existence,' that not a few of our reasonings regarding the introduction and extinction of species and genera must proceed."

Reasoning upon the well-grounded supposition that the earth was destined eventually to become the dwelling place of a being, "the sum total of all animals, — the animal equivalent to the whole animal kingdom," as Oken calls man, Mr. Miller well observes that the "definite period at which man was introduced upon the scene seems to have been specially determined by the conditions of correspondence which the phenomena of his habitation had at length come to assume with the predestined constitution of his mind." This position he illustrates by reference to the peculiar impression made upon the mind of man by the occurrence of those now comparatively rare phenomena, earthquakes. And after quoting from Humboldt and Tschudi their graphic descriptions of the effects of earthquakes upon the human mind, he thus continues:—

"Now, a partially consolidated planet, tempested by frequent earthquakes, of such terrible potency, that those of the historic ages would be but mere ripples of the earth's surface in comparison, could be no proper home for a creature so constituted. The fish or reptile,—animals of a limited range of instinct, exceedingly tenacious of life in most of their varieties, oviparous, prolific, and whose young immediately on their escape from the egg can provide for themselves, might enjoy existence in such circumstances, to the full extent of their narrow capacities; and when sudden death fell upon them,—though their remains, scattered over wide areas, continue to exhibit that distortion of posture incident to violent dissolution, which seems to speak of terror and suffering,—we may safely conclude there was but little real suffering in the case; they were happy up to a certain point, and unconscious for ever after. Fishes and reptiles were the proper inhabitants of our planet during the ages of the earth-tempests; and when, under the operation of the chemical laws, these had become less frequent and terrible, the higher mammals were introduced. That prolonged ages of these tempests did exist, and that they gradually settled down, until the state of things became at length comparatively fixed and stable, few geologists will be disposed to deny. The evidence which supports *this* special theory of the development of our planet in its capabilities as a scene of organized and sentient being, seems palpable at every step. Look first at these grauwacke rocks; and, after marking how in one place the strata have been upturned on their edges for miles together, and how in another the Plutonic rock has

risen molten from below, pass on to the old red sandstone, and examine its significant platforms of violent death,—its faults, displacements, and dislocations ; see, next, in the coal measures, those evidences of sinking and ever-sinking strata, for thousands of feet together ; mark in the oolite those vast over-lying masses of trap, stretching athwart the landscape, far as the eye can reach ; observe carefully how the signs of convulsion and catastrophe gradually lessen as we descend to the times of the tertiary, though even in these ages of the mammiferous quadruped, the earth must have had its oft-recurring ague fits of frightful intensity ; and then, on closing the survey, consider how exceedingly partial and unfrequent these earth-tempests have become in the recent periods. Yes ; we find everywhere marks of at once progression and identity, — of progress made, and yet identity maintained ; but it is in the habitation that we find them,—not in the inhabitant.”—p. 286.

The author, in continuation of this interesting subject, here adduces examples of vast tracts of country inundated by overflows of once liquid trap rock to the depth of several hundred feet, as occurring in Hindustan, in southern Africa, and even, though on a far more limited scale, in Scotland ; and asks,

“ What could man have done on the globe at a time when such outbursts were comparatively common occurrences ? What could he have done where Edinburgh now stands during that overflow of trap porphyry of which the Pentland range forms but a fragment, or that outburst of greenstone of which but a portion remains in the dark ponderous coping of Salisbury Craigs, or when the thick floor of rock on which the city stands was broken up, like the ice of an arctic sea during a tempest in spring, and laid on edge from where it leans against the Castle Hill to beyond the quarries at Joppa ? The reasoning brain would have been wholly at fault in a scene of things in which it could neither foresee the exterminating calamity while yet distant, nor control it when it had come ; and so the reasoning brain was not produced until the scene had undergone a slow but thorough process of change, during which, at each progressive stage, it had furnished a platform for higher and still higher life. When the Coniferæ could flourish on the land, and fishes subsist in the seas, fishes and cone-bearing plants were created ; when the earth became a fit habitat for reptiles and birds, reptiles and birds were produced ; with the dawn of a more stable and mature state of things the sagacious quadruped was ushered in ; and, last of all, when man’s house was fully prepared for him,—when the data on which it is his nature to reason

and calculate had become fixed and certain,—the reasoning, calculating brain was moulded by the creative finger, ‘and man became a living soul.’ Such seems to be the true reading of the wondrous inscription chiselled deep in the rocks. It furnishes us with no clue by which to unravel the unapproachable mysteries of creation; these mysteries belong to the wondrous Creator, and to Him only. We attempt to theorize upon them, and to reduce them to law, and all nature rises up against us in our presumptuous rebellion. A stray splinter of cone-bearing wood,—a fish’s skull or tooth,—the vertebra of a reptile,—the humerus of a bird,—the jaw of a quadruped,—all, any of these things, weak and insignificant as they may seem, become in such a quarrel too strong for us and our theory: the puny fragment, in the grasp of truth, forms as irresistible a weapon as the dry bone did in that of Sampson of old; and our slaughtered sophisms lie piled up, ‘heaps upon heaps’ before it.”—p. 288.

We ought to conclude with this eloquent passage, but, as “we are nothing if not critical,” we must just hint to our author that Crabbe’s “salt lavender, that lacks perfume,” is not *Statice Armeria* with its flowers *changed* to blue by the influence of sea air (p. 289), but the *naturally* blue-flowered *Statice Limonium* and its allies: and that we doubt whether *Eriocaulon septangulare* (p. 229) is really a native of America, where other species of that genus are common. These, however, are minor defects in a book of great excellence, a book which every one should read, and one that does equal honour to the author’s industry and ability, and to his zeal in the cause of religion and true science.

L.

Remarks on Glyceria fluitans and G. plicata.

By WM. HENRY PURCHAS, Esq.

WHEN looking in this neighbourhood for *Glyceria plicata*, I was much puzzled by the apparent inconstancy of some of the characters given for that plant and *G. fluitans*: a more careful scrutiny has convinced me that their limits are not yet correctly laid down in books, and also, that in addition to forms exhibiting trifling deviations from the type of *G. fluitans*, there is one which appears almost intermediate between that and *G. plicata*, and which, if only a variety of the latter, is well deserving of notice. I believe that other botanists have had suspicions of the kind, while Mr. Townsend has gone so far as to propose a third species,—*G. hybrida*,—but which does not seem to

have met with general acceptance. As the subject is still before the minds of some of our best botanists, I propose, by way of contributing in some degree to its elucidation, to lay before your readers a short account of all the forms which I have hitherto noticed in this district. I do not, however, at all pretend that I have detected the whole of the variations which may occur here, and still less that I have selected all the most salient and available points of distinction between them.

First.—*Glyceria fluitans*. The plants which agree in possessing acute outer pales nearly thrice as long as broad, anthers about five times as long as broad, and acute simply folded leaves, present the following modifications :—

α .—Branches of the fruit panicle appressed.

1. Anthers purple.

β .—Branches of the fruit panicle divaricate.

1. Green,—anthers yellow or purple before bursting.

2. Glaucous,—anthers pale yellow before bursting.

Thus it will appear that colour is not at all to be relied on as a distinctive mark. α . is the most common of all the forms ; I do not recollect to have noticed it with pale yellow, nor the glaucous plant, β . 2, with purple anthers.

Secondly.—*Glyceria plicata*. Of plants which agree in having their outer pales twice as long as broad, obtuse, with three nearly equal teeth, and anthers about three times as long as broad, there are two forms.

α .—A plant which precisely accords with a living plant of *G. plicata* which Mr. T. Moore kindly sent me, and which has flowered, during the past summer, in my garden : from its agreement with this plant, and with the descriptions of Babington and Koch, I take it to be the typical form of Fries's plant : in this the tip of each outer pale seems to reach only *one-third* of the way up the next floret on the same side. In dried examples, for which I am indebted to Mr. Watson and Mr. Moore, the uppermost leaf is much shorter in proportion to its sheath than in the plant I shall next notice,—and I once thought that this might furnish a distinction, but my Ross specimens seem to prove the character too variable to be of any value. The only point in which I have seen the leaves of the cultivated or wild plants differ as regards plicature from those of *G. fluitans*, is in having their margins folded inward ; never at all resembling Dr. Lindley's idea of " plicate " (*Elements and Introduction to Botany*) ; and even this additional fold seems only to be found early in the season, the young leaves produced towards the close of summer being much narrower

than the early ones. Neither wild nor garden plants have at this present time other than simply folded leaves. Koch seems to have noticed the variation of their folding, as he says "*foliis novellis pluries plicatis.*"

I have hitherto seen this plant in one spot only through this neighbourhood, and there by no means luxuriant, for it does not seem to relish its position on the margin of a ditch polluted by sewage. Other stations will probably be found by and bye, but this is evidently much the rarest of all the forms in this district.

β .—A plant which has the short pales and anthers of *G. plicata*, but combined with a more compound panicle, and the acute, green, simply folded leaves of *G. fluitans*. I have attempted to characterize it as follows.

G. ————— Panicle twice compound, nodding at the end; branches mostly in fives, *two compound*, the rest bearing single spikelets, patent in flower, divaricate with fruit; spikelets of eight to fourteen oval, oblong, *closely imbricated* florets; outer pale twice as long as broad, obtuse, with three nearly equal teeth, its summit reaching *half way up* the next floret on the same side; anthers about thrice as long as broad; leaves acute, simply folded; ligule elongate. Whole plant bright green, except the outer pales, which with fruit are, as in α ., tinged near the summit with purple. The leaves are undistinguishable from those of *G. fluitans*,—I have examined them at all seasons of the year, and have never seen them other than simply folded: the panicle has a fuller look than that of α ., from the greater number of compound branches; in all the examples which I have seen of that plant, one alternating branch only of each whorl is compound, the rest bearing single spikelets,—while in this plant two branches at least of each whorl are almost constantly compound; and thus, as they turn in opposite directions, the panicle of α . seems *alternately*, and that of β . *oppositely* branched: the spikelets are more numerous than in the typical plant, but shorter, being composed of fewer and more closely imbricated florets, the summit of each outer pale reaching exactly half way instead of one-third up the next floret on the same side; in spikelets of thirteen florets taken from the panicle of each plant, that of α . exceeded that of β . by the length of a floret: the anthers are shaped like those of the typical plant, and are either purple or pale yellow before bursting. These points though constant, so far as I have been able to observe the plants of this district, may not prove universally so: accordingly, I offer them only as suggestions. This form is pretty generally distributed over a district

of some miles in extent, less commonly indeed than *G. fluitans*, and, unlike that species, evincing a peculiar partiality for running water, its customary resorts being shallow streamlets and the margins of brooks; I do not remember to have noticed it in a single stagnant pool. I have no means of ascertaining whether this is what Mr. Townsend meant by his *G. hybrida*, as no description seems to have been published of that plant, and I have seen no authentic specimens. Whatever rank be conceded to the present plant, it is certainly not of *hybrid* origin: its occurrence in such large quantities in company with *G. fluitans*, while the typical *G. plicata* is almost absent from the neighbourhood, is fatal to such an idea. I should very unwillingly be guilty of hasty or unnatural manufacture of species; and considering the very small amount of good structural characters which I have been able to detect for this plant, I cannot at present claim for it a higher grade than that of variety; yet is it, when once known, so readily distinguishable from α , that I am desirous of directing the attention of botanists to it, as it most probably occurs elsewhere. Other and better points of distinction between it and *G. plicata* might perhaps have presented themselves had I enjoyed fuller opportunities of studying the latter in a living state: perhaps those who are more fortunate in this respect will look out for the other plant, and make known through your pages the result of a careful comparison.

W. H. PURCHAS.

Ross, Herefordshire, Nov. 17, 1849.

Note on the Discovery of Teucrium Botrys.

By WILLIAM BENNETT, Esq.

As one of the original discoverers of *Teucrium Botrys*, in company with my friend Thomas Ingall, in the neighbourhood of Boxhill, when rambling over that beautiful district in the autumn of 1844, it is with the greatest pleasure and interest I read the account of its rediscovery by G. S. Gibson and W. Borrer, in the last number of the 'Phytologist,' and their opinion of its being most indubitably wild; especially after hearing reports of its extermination, and knowing of unsuccessful attempts to find the plant by several industrious botanists, so as almost to throw doubts upon its authenticity. No one who had seen the plant and its locality could hesitate in pronouncing it truly wild. The spot is peculiarly solitary, at least for being within the range of

a metropolitan county. It is far from any human habitation. The plant is not one ever grown in gardens; nor was that part of the hill-side ever previously known to have been under cultivation, so that it could not have been introduced with the crops; though I have since heard that a portion of it has been ploughed up. I visited the spot several times in the course of that autumn, and sent a living plant still in flower as late as the middle of November to the Secretary of the London Botanical Society. I left that part of the country before the following season, and have never had the opportunity of visiting it since. I grew several plants from seed the following year, but they all went off without coming into bloom.

One of my objects in this communication is to ascertain, if possible, whether G. S. Gibson's is identical with the spot where we first found the plant, or a new locality. Knowing the "piratical tendencies" of some botanists, though gladly supplying specimens to all my friends, I resisted the communication of the exact spot to any but one particular friend. Our locality answers precisely to the description of a rough, stony, steep hill-side; and the plant was scattered pretty plentifully, varying much in the size and growth of the specimens, over a considerable space, but none at the bottom nor very near the top of the side of the hill or rather ravine; and it was not properly on a part of Boxhill, being on the eastern or Reigate side of the ravine, in a direct line between the village of Brockham and Headley Lane, and more correctly a part of Brockham or Headley Hill. That somewhat local plant, *Ajuga Chamæpitys*, grows in great profusion in the fields at the base of Boxhill, on the southern or Brockham side; or rather *grew*; for a railroad now cuts them all through.

WILLIAM BENNETT.

London, 17th of 11th mo. 1849.

Occurrence of Carex Persoonii in an unrecorded Locality in Yorkshire. By JOHN G. BAKER, Esq.

PERHAPS it may be interesting to some of the readers of the 'Phytologist' to know that in the beginning of the summer of the present year I gathered a few examples of *Carex Persoonii* (*Sieber*) in Snailsworth, the most western of the dales which intersect the group of hills situated in the north-east of Yorkshire.

The station was in a rather boggy wood near the source of the

Locker Beck, a small tributary of the Wheal, the principal stream of the dale. In the same wood *Trientalis europæa* occurred plentifully. The elevation, as nearly as I can calculate, will be about one thousand feet above the level of the sea.

JOHN G. BAKER.

Market Place, Thirsk,
19th of 11th mo. 1849.

Occurrence of Rare Ferns in the Snowdon District.

By EDWARD NEWMAN.

Woodsia Ilvensis. This fern has appeared in unusual abundance during the past season at the old station on a rock above Llyn-y-Cwn. A correspondent writes me for my own information, that as many as about a hundred plants are visible; fortunately, however, nearly the whole of them are inaccessible, and cannot possibly be obtained without the assistance of a ladder.

Woodsia alpina. This fern has occurred in smaller quantities than the above at the old station of Clogwyn-y-Garnedd: two botanists have kindly handed me this information.

Asplenium germanicum. Two plants of this species have been found in the previously recorded locality between Llanrwst and Capel Cerig. I believe it is properly called Bwlch-y-Rhyn, but the spelling of Welsh names seems not to be governed by any fixed law, but to be optional with the tourist. Would it not be wise as well as convenient to adopt the spelling of the Ordnance Survey, thus reducing topographical nomenclature to a fixity, rather than leaving it as at present a mere matter of taste?

Asplenium septentrionale. In twenty localities near Llanrwst, or between that town and Capel Cerig, more particularly in Bwlch-y-Rhyn.

Polystichum Lonchitis. Cwm Idwell and Clogwyn-y-Garnedd, not very sparingly in either locality.

EDWARD NEWMAN.

Devonshire Street, London.

Additional List of the Rarer Plants growing near Colvend.

By PETER GRAY, Esq.

ALLOW me to offer, by way of addendum to the list I furnished last year, a few additional stations in Colvend for less frequently occurring species included in the first volume of Hooker's 'British Flora.' They have been ascertained by my friend, the Rev. James Fraser, in the course of occasional rambles in his interesting parish during the season just elapsed.

Carex extensa. Marshes near the detached rock on the coast, called by the aborigines "Lot's Wife;" and about Glenstocking.

—— *distans.* Along almost the whole coast.

Eryngium maritimum. Shore near the mill-stone quarry.

Lycopus europæus. Lockhouse; border of Manse Loch, and several other places.

Enanthe pimpinelloides. Marshes near Lot's Wife, and sea-side near Glenluffin.

Utricularia minor. Cloak Moss, between Colvend and the parish of Urr.

Osmunda regalis. Waterfall at Lot's Wife.

In a wood between Colvend and the village of Dalbeattie, in the neighbouring parish of Urr, Mr. Fraser also finds *Convallaria majalis*, "to all appearance indigenous." And across the estuary of the Urr, on the walls of the old tower of Orchard-town, in the parish of Buittle, as well as upon the old dyke surrounding it, growing out of the decaying lime, he has found *Ceterach officinarum*. My correspondent also informs me that *Ophioglossum vulgatum* is said to grow abundantly in a marsh in the adjoining parish of Kirkbean. This I shall endeavour to authenticate. I know only one locality in the county of Dumfries for this pretty fern; "a marsh," however, is not, I should think, a likely habitat.

PETER GRAY.

Queen Street, Dumfries,
November 21, 1849.

P. S.—In last year's list *Leonurus Cardiaca* and *Meum athamanticum* were given through some inadvertence on the part of my informant as denizens of Colvend. Neither, I now understand, is known to grow there; although the discovery of the latter is not improbable, as it grows about here in a similar country. I may mention, too, that, confounding the names of two *Carices* similar in meaning, however

distinct the plants are in form, I gave the vicinity of Port o'Warren as a station for *Carex remota* instead of *distans*, which Mr. Fraser has since found elsewhere in abundance. With these exceptions all the stations then given have been authenticated by specimens.

P. G.

Occurrence of Polypodium Phegopteris in Gloucestershire.

By EDWARD T. BENNETT, Esq.

DURING a day's excursion to the Forest of Dean this summer, I had the pleasure of very unexpectedly meeting with that elegant fern *Polypodium Phegopteris*. About a mile and a half above Lydbrook, towards Coleford, out of a low wall by the road-side, grows *Polypodium calcareum*. The station for *Phegopteris* is nearly opposite this, on the other side of the road, a short distance within the wood. It is growing among bushes in a boggy bit of ground; I think in rather an unusual position, its favourite habitat being among moss on rocks and stones, amid the spray of waterfalls. Although a considerable patch of a hundred or two fronds, it had not attained to near that luxuriance and size of frond which makes it such a beautiful object in some more mountainous parts of the country. But it is an interesting addition to the ferns of Gloucestershire, in which county I am not aware that it has been previously recorded.

EDWARD T. BENNETT.

Woodfields, near Ross.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 669).

Statice Limonium. On mud flats and salt marshes; very abundantly on most parts of the shores of the Isle of Wight and mainland Hants that are of this character. Plentiful along the muddy banks of the Medina above Cowes. Banks of the Yar and Wootton Rivers, and in Newtown marshes in the greatest profusion. Yarmouth and Brading harbours in abundance; Mr. W. D. Snooke (Fl. Vect.)!! On

the rocks in Scratchells Bay, near the Needles ; Mr. E. Lees in New Bot. Guide Suppl. May not this station belong to *S. spathulata*, as *S. Limonium* does not usually grow on rocks or cliffs, which the former, I think, invariably does ? (see our third species). Var. β . Flowers distant on the branches, see next species, and Ray's Syn. Dillen. edit. p. 202. On the mainland the Sea Lavender abounds about Portsmouth harbour, in Hayling Island, and wherever mud flats are found.

Statice rariflora. In exactly the same places with the last species, from which it is not separated by one constant and tangible character that I can discover, and into which it may be seen passing so insensibly as to preclude the possibility of fixing the limit between them. Side of the Yar near Freshwater Mill ; sparingly. In muddy places about Wootton Creek, intermixed with the ordinary *S. Limonium*, and growing to a large size (two feet or upwards) ; Rev. G. E. Smith !!! Shore at Cams ; the Salterns (near Fareham) ; Mr. W. L. Notcutt !!! I have taken considerable pains to verify the characters laid down for this and the foregoing species by careful comparison of living specimens, and can come to no other conclusion than that already stated. I find in well-marked *S. Limonium* the branches very often strongly incurved, the calyx segments seem to me to differ little or nothing in both, the tothing being very irregular, sometimes well-marked, at other times nearly obsolete. It is true that in the sparse-flowered variety of *S. Limonium* (*S. rariflora*) the outer bracts are in general larger than in the dense-flowered state of the plant, but even this I found to fail occasionally, and if invariable, would be too slight a character to found a species on by itself. Mr. H. C. Watson (*Cybele Brit.* vol. ii. p. 307) remarks that plants of this supposed species from the southern coast of England, and others from the West Lowland province (S.W. of Scotland) "differ somewhat from each other ;" Mr. W. would find just the same difference in specimens from the same locality on the Hampshire coast as he perceives in examples from distant localities.

—— *spathulata* ? On rocks and cliffs by the sea ; (never ?) on flat or muddy shores ; very rare, if not now extinct, in Hants. Isle of Wight : given (but erroneously) on the authority of the Rev. G. E. Smith in the 'New Botanist's Guide.' In two subsequent communications from my esteemed friend, he tells me he believes it was collected on the cliffs near Freshwater by the Rev. Mr. Wood or the Rev. R. Price. On rocks in Scratchell's Bay ? Mr. E. Lees (see *S. Limonium*). Now apparently destroyed on these ever-crumbling cliffs,

as I have personally searched every accessible spot along the whole range of the majestic chalk rampart from Freshwater Gate westward to the Needles, and round the point into Alum Bay, without success, and have likewise instructed the cliffsmen, in their perilous task of samphire-gathering, to send me any plants of sea lavender they might find on the cliffs, but which they assure me they have not yet fallen in with.* Should these 'Notes' meet his eye, Mr. Lees may perhaps still have it in his power to dispel the doubt, so far as he is concerned, regarding this species as indigenous to the Isle of Wight, by examining his specimens afresh, and communicating the result to the pages of this journal, or through private communication to myself, as he thinks proper; either of which courses I should esteem a favour from that gentleman. Although the existence of *S. spathulata* as a Vectian species rests on somewhat uncertain grounds, I retain it on the list of natives from the respectability of the testimony given, but rather dubiously, by Mr. Smith, and because I think it most probable that the plant of Messrs. Wood and Price and that of Mr. Lees was the same, and in the latter case unlikely to have been *S. Limonium* from the nature of the situation in which it was found growing, besides which, the chalk cliffs of this island are just the localities where the *S. spathulata* may reasonably be supposed to have occurred. I have myself gathered it in precisely analogous places near Dover, where Mr. Smith first noticed it, and published it as a plant new to Britain.

Armeria vulgaris. On rocks, cliffs, banks and pastures by the sea, as well as on the shore itself; abundantly on the island and mainland, along most parts of the coast. By the Medina, the Yar, on the spit at St. Helen's, &c. Var. β . Flowers white; very rare? Amongst the abandoned Salterns near Lyminster, towards Milford, in one spot abundantly with the common red sort, June 3rd, 1849. The flowering time of this, as of many other of our native plants, is very incorrectly given in books. The common Thrift begins to flower in ordinary years with us here in April, and is ever in good bloom in May, continuing to blossom on till September, whereas our British authors assign July for the commencement of inflorescence.

* To botanists visiting Freshwater, who may wish to procure specimens of the wild stock, samphire, or other plants inaccessible from above to the longest arm, I would beg to recommend a cliffsmen named Jackman, whom I have been in the habit of employing for some years past, for his civility, intelligence and activity, and who may generally be found in attendance as a boatman at Freshwater Gate on inquiry at Groves's Hotel.

Plantago Coronopus. In dry, sandy, gravelly places, fields, pastures and waste ground, under walls, &c., very common. On Ryde Dover in plenty. Very fine and abundant on the green sand along the coast, as on Royal Heath, and above Sandown Bay, betwixt Sandown and Shanklin. Particularly abundant and luxuriant everywhere on the green sand along the whole line of cliff coast betwixt Blackgang and Compton Bay.

——— *maritima.* In mud flats and salt-marsh meadows and pastures; common on the coasts of the island and mainland. In the meadows behind Ryde Dover in abundance. Muddy sides of the Medina above Cowes. Shores of Brading and Yarmouth harbours, &c., in plenty.

——— *lanceolata.* In meadows, pastures, by road-sides, waste places, &c., everywhere plentiful.

——— *media.* In dry meadows and pastures, particularly on calcareous soils; very frequent over the county and Isle of Wight. About Ventnor and other parts of Undercliff, the prevailing species. Plentiful about Newport, Carisbrook, Thorley, Calborne, and throughout the chalky districts generally. Common on most of the chalk downs and pastures in the county, as about Winchester, Whitchurch, Andover, &c. The prettiest of all our plantains, and very sweet-scented in flower. Sir James Smith recommends for destroying this plant on grass plats, the pouring a drop of sulphuric acid on the crown of the root; a piece of valuable advice to such gardeners as have time to undertake and patience to perform the operation effectually.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
November, 1849.

(To be continued.)

THE PHYTOLOGIST FOR 1849.

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THE
PHYTOLOGIST:
A
POPULAR
BOTANICAL MISCELLANY.

CONDUCTED BY
EDWARD NEWMAN.

VOLUME THE THIRD.
(CONTINUED).



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLIX.

Yet happier, in my judgment,
The wandering Herbalist, who, clear alike
From vain, and that worse evil, vexing thoughts,
* * * * * peeps round
For some fair floweret of the hills, or plant
Of craggy fountain ; what he hopes for, wins
Or learns, at least, that 'tis not to be won.
Then, keen and eager, as a fine-nosed hound,
By soul-engrossing instinct driven along,
Through wood or open field, the harmless man
Departs, intent upon his onward quest.

WORDSWORTH.

P R E F A C E.

IN the annual address to my subscribers at the close of 1848, I expressed my willingness to increase the monthly quota of letter-press without any additional charge, provided my contributors would send a greater amount of communications : the result, however, has shown that the usual thirty-two pages has sufficed without delaying a single contribution ; and consequently there has been no necessity for carrying out the project. Another mode of adding to the value of the 'Phytologist' has been suggested by a friend, and I feel confident it will give satisfaction to my subscribers : it is to publish, without any additional charge, a carefully engraved figure of every newly-discovered British species. On an average the annual increase of species, exclusively of the genera *Rubus*, *Rosa* and *Salix*, which I totally exclude from my proposition, may be taken at a fraction less than four, and the cost of four engravings does not present any material obstacle ; indeed, were the expense greater than I ought to incur, I feel confident that several of my friends will be willing to afford pecuniary assistance. I therefore beg to announce that from the present time I shall be happy to give a finished figure of every new plant that may be discovered : a few conditions must, however, be observed.

First. Specimens must be submitted to a competent botanist for his decision as to the name, distinctness and novelty of the species : Mr. Borrer, Mr. Watson, or Mr. Wilson, of Warrington, occur to me as unexceptionable referees, and I trust neither of these gentlemen will hesitate to lend their assistance.

Secondly. Perfect specimens of the plant must be sent to the her-

baria of the Linnean and Botanical Societies, labelled with the name, locality, date and name of communicant.

Thirdly. Perfect specimens, in a recent state, if possible, must be transmitted to Devonshire Street for the purpose of being drawn, or for comparison with drawings accompanying them. Drawings made by the communicant will be preferred, and magnified details of diagnostic characters, where the new plant resembles a generally known species, will be acceptable.

Fourthly. A careful description must accompany the drawings, &c.: if the plant be new to science this, of course, must be original, but if previously known as a continental species, a translation from a standard author will suffice.

I sincerely hope that British botanists will see the great utility of this project, and will cheerfully and heartily co-operate with me in carrying it into execution. I have already received such manifest proofs of kindness and goodwill from my contributors that I feel no hesitation in again soliciting their assistance: an additional expense will now be incurred, and this can, I think, be readily defrayed by an increased sale: a larger number of copies will be prepared, and the exertions of my friends are most earnestly requested in the obtaining of additional subscribers.

In looking back on the past year, it does not occupy a prominent place in the botanical annals of the country. Beyond sundry proposed subdivisions and changes of name, thus imparting a superficial idea of novelty, the botanical additions for the year 1849 have been very few.

Poterium muricatum of Spach, the *P. polygamum* of Waldstein, has been found (Phytol. iii. 707) by several botanists near Cambridge; my valued correspondent, Mr. G. S. Gibson, subsequently met with it at Heydon, in Essex, and at Boxhill, in Surrey; and Mr. Kirk (Phytol. iii. 715) has found it in various places on the slopes of the Coventry and Leamington railway, in Warwickshire. This plant is to be regarded as an old and probably not uncommon inhabitant of this

country, where it has always been confounded with the still more abundant *Poterium Sanguisorba*. I am not competent to decide on its specific distinctness from that familiar plant, but am willing to put faith in the opinion of those who have thus decreed.

Teucrium Botrys has again been found at Boxhill, and Messrs. Borrer and G. S. Gibson pronounce it a true native (*Phytol.* iii. 707).

Bromus arvensis, for which other species have been so often mistaken, has been found introduced in corn-fields in the same locality, and by the same energetic botanists.

New localities have been reported for the following rare, or perhaps, more correctly speaking, little-known species.

Filago spatulata has been found by Mr. Varenne (*iii.* 385) at Inworth, in Essex.

Udora canadensis has occurred in a number of localities almost sufficient to induce the conclusion that this plant has been hitherto most negligently overlooked. The first of these localities, in the Lene, near Nottingham, is recorded by Miss Kirby (*iii.* 387), who remarks that Mr. Mitchell's attention was attracted to the circumstance from seeing pieces of the plant scattered about the meadows after a flood. Mr. Kirk (*iii.* 389) has found it in great abundance at Watford Locks, in Northamptonshire. Dr. Johnston found it (*iii.* 541) at the lake at Dunge Castle, so far back as 1842, and again in abundance in 1848, in the Whitadder or its tributaries: I believe these localities are in Berwickshire. And last, Mr. Brown (*iii.* 647) informs us that it forms large submerged masses in the Trent. Fashion, and perhaps the love of novelty, have changed the name of this plant from *Udora canadensis* to *Anacharis Alsinastrum*. Is there sufficient botanical ground for the change? Dr. Johnston says (*l. c.*) "I have specimens of *Udora canadensis* from Dr. P. W. MacLagan, gathered in Detroit River, July, 1848, and they exactly resemble our Whitadder plant, as found at the Newmills station:" other excellent botanists express the same opinion.

Woodsia Ilvensis. Mr. Stevens says of this species (iii. 392) "This rare and handsome little fern I found in considerable abundance on very steep, crumbling rocks, amongst the hills dividing the counties of Dumfries and Peebles, in July last; it is growing in dense tufts in the crevices of the rocks, and very luxuriant, many of the fronds measuring nearly six inches in length." It is interesting to know (iii. 739) that as many as a hundred plants of this rarity still exist at the old Caernarvonshire station, Llyn-y-cwn.

Woodsia alpina has reappeared at Ray's old Caernarvonshire station, Glogwyn-y-Garnedd (iii. 739).

Simethis bicolor "has been found (iii. 453) by Mr. Thaddeus O'Mahony, growing in a perfectly wild situation on hills near Derrynane Abbey, the seat of the O'Connells. The hills where this plant grows have probably never been turned up, and the plant has certainly never been cultivated in a neighbouring garden." — *Dr. Harvey in the 'London Journal of Botany.'*

Linaria supina. In a report of the ordinary meeting of the Botanical Society (iii. 536) it is recorded that a station has been found for this plant by Mr. G. Maw, at St. Blazey's Bay, in Cornwall.

Hypericum linariifolium. Mr. Goulding announces (iii. 643) that he has found this species by the side of a hedge, ascending a hill from Blakstone to Maristowe, near the river Tavy, Devon; and adds that it is now to be found plentifully about the Morwell Rocks, by the Tamar. Mr. Goulding kindly transmitted a specimen, which Mr. Watson pronounces to be correctly named.

Leersia oryzoides. Dr. Bromfield has a detailed account of this very local grass (iii. 681) as found by himself in the New Forest, in Hampshire: the paper contains some useful remarks on characters by which it may be readily distinguished from *Phragmitis communis*, a plant with which, in the English stations, it is commonly associated.

Melilotus arvensis is reported by Mr. G. S. Gibson (iii. 707) to occur in the parishes of Heydon and Stratford, both in Essex.

Carex Persoonii. Mr. Baker (iii. 738) has found this mountain *Carex* at Snailsworth, the most western of the dales which intersect the group of hills situated in the north-east of Yorkshire.

Polypodium Phegopteris. This fern, hitherto supposed to be confined to the northern and western counties and a solitary locality in Sussex, has been found (iii. 741) by Mr. Edward T. Bennett, in the Forest of Dean, Gloucestershire.

I cannot allow the opportunity which this annual address affords me of noticing Dr. Bromfield's admirable papers on the Plants of Hampshire. That contribution has indeed extended to an unprecedented length, but it contains such a mass of new and useful matter and of interesting observations incidental to the leading subject, that it assumes a peculiar botanical value, quite independent of its utility as a county list and guide to localities. The comments on each species would have formed excellent contributions to these pages even if printed as separate articles.

Mr. Watson's admirable paper, entitled "Who knows *Viola canina*?" clears up and corrects much that was previously obscure and erroneous: I much wish he would favour this Journal with brief diagnostics by which the three species of Smith, *Viola canina* or *sylvatica*, *V. flavicornis* and *V. lactea* might be readily distinguished from each other.

Among the books noticed during the year, I may mention the completion of the 'Flora Hertfordiensis' and the second volume of 'Cybele Britannica,' as real contributions to the science of Botany, more especially in connexion with the British Islands. Dr. Balfour's 'Manual of Botany' is a good educational work.

My readers will, I doubt not, be pleased with the notice (iii. 717) of Mr. Miller's new work, entitled 'Foot-prints of the Creator,' a work the object of which would appear to be to act as an antidote to the

once celebrated 'Vestiges of the Natural History of the Creation.' My own opinion respecting the poetical hypothesis of Lamarck, as revived by the author of the 'Vestiges' is very decided: I consider that the said author argues throughout on facts which he either assumes or takes for granted, and that such a proceeding can by no possibility lead to just conclusions. In fact, the book is a pleasing poem, and like other poems, it mixes a mass of fiction with a modicum of truth. Still I fear Mr. Miller is hardly the man to answer the author of the 'Vestiges:' he may be called the poet of geology as his fellow-labourer is the poet of philosophy: both possess a fatal facility of writing, and an elegant, fascinating style, that appeals strongly to the feelings but weakly to the judgment.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
December 12, 1849.

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'THE PHYTOLOGIST' will be continued both as a monthly and an annual publication. As a monthly, it will contain thirty-two pages of letter-press, occasionally accompanied with figures of New British Plants; it will be on sale two days before the end of every month; and will be charged one shilling. As an annual it will be sold on or about the 1st of December; will contain twelve monthly numbers, bound and lettered uniformly with the present volume; and will be charged thirteen shillings. An alphabetical list of contributors is published once in the year.

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LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.L.

The smallest flower
That twinkles through the meadow-grass, can serve
For subject of a lesson ; aye, as well
As the most gorgeous growth of Indian climes ;
For love of nature dwells not in the heart
Which seeks for things beyond our daily ken
To bid it glow. It is in common life,
In objects most familiar, we find
Exhaustless matter for our privilege,
Our glorious privilege of reading God
Amid his bright creation.

L. A. TWAMLEY.

P R E F A C E.

THE *British* character with which from the beginning I have striven to invest this journal, has been remarkably developed during the present year, and I believe this restriction has been a main cause of the very considerable increase in circulation which has taken place. The establishment of a somewhat rival journal, under the title of the 'Botanical Gazette,' although conducted with the same fairness, and absence of hostile expression, which I trust has invariably characterized the pages of the 'Phytologist,' yet seemed likely to divide botanists into two sections, and establish a party in favour of each. I cannot find that this has been the case, and I regard the 'Gazette' as likely to draw from the pages of the 'Phytologist' only such purely technical papers as previously were occasionally, but very unfrequently, found in its pages. One circumstance, however, connected with the 'Gazette' I cannot avoid mentioning with regret. I allude to the fact that on its commencement the Botanical Society of Edinburgh ceased to send me reports of their meetings, while such reports were regularly supplied to the 'Gazette.' Seeing that I was one of the earliest subscribers to the Botanical Society of Edinburgh, that I obtained for them a great number of other subscribers, and that I never subscribed to any other Botanical Society, this conduct certainly seems uncourteous, some might say unjust. The Botanical Society of London has taken a directly opposite course, and has regularly transmitted an account of its proceedings, although I have never subscribed towards their expenses. I beg very cordially to thank Mr. Dennes, the energetic and indefatigable Secretary, for his continued kindness and attention in this matter.

The 'Phytologist' for the present year is characterized by the value and extent of Dr. Bromfield's paper, intituled a 'Catalogue of the Plants growing wild in Hampshire.' Independently of the mass of general information conveyed under this title, Dr. Bromfield has conferred an important and lasting benefit on the science of British Botany, by reviewing, in a truly philosophical and most truth-seeking spirit, the claims of certain disputed species to be regarded as true natives of this island. This talented botanist entirely ignores the fact of occasional cultivation as a sufficient ground for distrust; and contends that if a species increases spontaneously, firmly maintaining its position in our woods or moors, under similar circumstances as regards latitude, soil and situation, to those in which it has always been found on the continent of Europe, and which have obtained for it an unquestioned place in European floras, then it has an equal right to be admitted without question into our own. Dr. Bromfield's observations on *Fritillaria Meleagris* (Phytol. iii. 964) and *Lilium Martagon* (*Id.* 968) are worthy of the most careful study. Nothing can be more confused, contradictory and unsatisfactory, than the capricious decisions of our publishing botanists as regards the nativity of plants growing wild in Britain; and great praise is due to one who has ventured to treat the subject in so searching and logical a manner. The same distinguished botanist has for the first time laid down characters whereby the closely-allied *Orchis bifolia* and *O. chlorantha* may be distinguished from each other (Phytol. iii. 991).

Mr. Watson has an admirably lucid paper, intituled 'Explanatory Notes on certain British Plants for distribution by the Botanical Society of London, in 1850' (Phytol. iii. 801). The plants noticed are the *Viola canina* group, *Poterium muricatum*, *Melilotus arvensis*, *Fumaria agraria*, *Stachys ambigua*, *Sinapis Cheiranthus*, *Arenaria media*, *Lastrea uliginosa*, *Cystopteris fragilis*, var. *Dickeana*, *Hieracium sylvaticum*, c. *pictum*, *Polygala depressa*, *Atriplex patula-deltoides*, *Bromus pseudo-velutinus*, *Pyrethrum inodorum*, proliiferous variety, and *Hyacinthus non-scriptus* with foliaceous bracts.

The Rev. Mr. Bree, whose writings must, I am sure, be always read with delight and instruction, has three interesting papers. The first is called 'Warwickshire Habitat for *Gagea lutea*' (Phytol. iii. 922). The second, 'A Visit to the Lily Field, or *Narcissus poeticus* in Warwickshire' (Phytol. iii. 945). In this contribution the extraordinary abundance of the beautiful *Narcissus* in the locality described is very pleasingly set forth (Phytol. iii. 945). And the third, 'Note on *Lastrea uliginosa*' (Phytol. iii. 1087). In the last, Mr. Bree pronounces this fern, which I had ventured to describe as new, to be identical with *Lastrea spinosa*, as he is accustomed to see it in his own immediate neighbourhood. He does not pronounce this judgment carelessly or hastily; neither does he content himself with my own imperfect description; but has been at the trouble of obtaining a living plant from Mr. Kennedy, of Covent Garden, and has instituted a fair and searching examination of its characters. On such a question as this I have the highest possible respect for Mr. Bree's judgment: the great talent he has displayed in extricating *rigida* and *recurva* from the confused mass of species previously known as *dilatata* of Smith, and *spinulosa* of Hooker, entitle him to our warmest praise. On the other hand, it seems fair also to state that Mr. Moore, of the Chelsea Botanic Garden, a gentleman who has made our British ferns his peculiar study, and who has written with great success on this very subject, labels the fern in question, without doubt, as *Lastrea cristata* (see Phytol. iii. 802). It may, I think, however, be gathered from a careful study of the passages to which I have referred, that both these excellent botanists regard the fern rather as an aberration from the species named than as its typical form; and thus their opinions assimilate more nearly with each other, and also with what I have advanced on the subject, than at first sight appears to be the case.

Mr. Bloomfield mentions (Phytol. iii. 943) the discovery of *Orchis hircina* in Suffolk, a circumstance of considerable interest; and while writing of this rarest of British *Orchideæ*, I will take the opportunity of recording the fact that James Potter, well known as a collector of

British ferns and Orchideæ, and who, I regret to say, has lately died of consumption, brought to me for four successive years living specimens of *Orchis hircina*, with a round of virgin turf still investing the stem, which he asserted he had himself dug up in Kent. As Potter always refused to disclose the exact locality, I have hitherto declined saying anything on the subject, knowing that the extravagant price given by some botanists for this and other rarities holds out a premium to deception, and thinking it possible poor Potter might have received the plants from abroad. I may, however, add that I never had any better reason for this uncharitable suspicion than the fact that botanists have uniformly failed in rediscovering the plant in its Kentish station.

Mr. Woods has a paper intituled 'Botanical Notes, the result of a Visit to Glamorgan and Monmouthshire in the latter part of July and beginning of August' (Phytol. iii. 1053). This paper is interspersed with numerous observations on the characters of supposed species of *Rubi*, and the introductory paragraph on this fashionable genus contains some highly valuable remarks, worthy of a very careful perusal.

To Mr. Bladon, of Pont-y-Pool, we are indebted for a paper on the genus *Hieracium*, exhibiting a tabular view of the species as they stand in Fries's 'Symbolæ ad Historiam Hieraciorum' and Mr. Babington's 'Manual of British Botany.' This contribution might have been rendered still more useful had the author added more largely, and given more copious explanations, from his own resources; for it is well known that few of our British botanists have paid so much attention to this difficult genus. A careful revision of the British species is still a great desideratum, and I hope Mr. Bladon may be induced to undertake it. By confining the attention to a limited group of this kind, much more may be effected even by a tyro in botany than can be achieved by the greatest proficient, as an infinitesimal portion of the vast whole which he is desirous of grasping.

Mr. Kirk has an interesting paper on *Udora canadensis*, as occurring

in Watford Locks. This gentleman learned that a branch of the Market Harborough Canal was so full of this plant, "that the passage of boats was impeded by it, and the canal necessitated to be cleared out once or twice a year, and that it had been so for many years" (Phytol. iii. 990). In connexion with this subject, Mr. Kirk well observes, "How very remarkable that for so long a period this plant, in widely separated localities, should, with the single exception of Berwickshire, have totally escaped the notice of botanists." I cannot resist the temptation I feel again to express my regret that Mr. Babington should have thought it necessary to give this plant another name, and more especially that the new name should be even partially retained, although our best botanists consider the plant absolutely identical with the North-American species.

Mr. Thomson records the discovery of *Lobelia urens* in a wood near Ashford, in Kent (Phytol. iii. 1051). The only previously known British habitat of this conspicuous species is in Devonshire, and its occurrence in Kent is a circumstance of great botanical interest. I may add that Mr. Thomson most obligingly brought me a living specimen from this locality, in order to convince me that the species was correctly named.

Mr. Webb has a paper on the *Allium Holmense* of Ray (Phytol. iii. 937), which he appears to consider identical with *A. Porrum*, and to be descended from the common leek, as cultivated in gardens: he also invites a further examination of the Steep-Holms' plant, since it has been universally treated by botanists as *Allium Ampeloprasum*, a plant which appears to be absent from the western departments of France.

Mr. Lees reports the occurrence of *Atriplex hortensis* in Worcestershire (Phytol. iii. 1050), at the same time informing his readers that he finds it on *made* ground, and suggests that the seeds of this old olitory plant may have lain dormant for many years. The same

botanist also communicates a paper on the 'Botanical Features of the Great Orme's Head' (Phytol. iii. 869).

Mr. Keys, of Plymouth, contributes (Phytol. iii. 869) a list of 'Plants found in Devonshire and Cornwall, in addition to those contained in Jones's 'Flora Devoniensis,' and in Art. LII. of Part 1 of the 'Phytologist.' The list contains thirty-one species, but I suspect that some of them, as *Datura Stramonium* and *Polemonium cæruleum*, must be regarded rather in the light of intentional omissions on the part of former botanists, than as additions to the Devonian flora.

The other contributors of original papers are Mr. James Backhouse, Mr. Alfred W. Bennett, Mr. W. Bennett, Mr. Buckman, Mr. De la Chaumette, the Rev. Mr. Douglas, Mr. B. Flower, Mr. Holland, Mr. Hussey, Mr. Luxford, Mr. Ogilvie, Mr. Oliver, Mr. Roby, and Mr. Withers, all of them recording the observations made during botanical excursions, or some facts of interest connected with the science; and I must not omit to notice, although recorded only on the wrapper, the discovery of *Cyclamen Hederæfolium* on our southern coast, near Hastings, by Mr. W. W. Saunders; of *Lycopodium annotinum* in a second Caernarvonshire station, by Mr. W. W. How; and of *Cystopteris montana* a third time in Scotland, by Mr. Borrer and Dr. Walker-Arnott.

The reports of the Botanical Society of London contain a number of interesting records. I would particularly cite the discovery of *Lilium pyrenaicum* between South Molton and Molland, in Devonshire, by Mr. George Maw (Phytol. iii. 988), and that of *Naias flexilis* in a pond near Roundstone, Connemara, Ireland, by Mr. Daniel Oliver, Jun. (Phytol. iii. 1088).

It is well known to the majority of my readers that I am indebted to an abler botanist than myself for those notices of new works to which the signature "C." is affixed. One of these, intituled "Notice of the 'Tourist's Flora'" (Phytol. iii. 1042), has, I regret to find, been

thought unfair by the author reviewed, and has led him to publish a reply (*Id.* 1085). In distinctly stating that the notice in question is not my own, I by no means desire to shrink from every responsibility. The public has no rule for separating the anonymous "we" of a reviewer from the actual and avowed editor, although the latter may possess neither the talent nor the knowledge to write the article in question; and I therefore adopt as my own the said review, and neither evade nor extenuate the responsibility incurred. Regarding, then, the review of the 'Tourist's Flora' as my own until another shall claim its paternity, I think it right to say that I extremely regret the use of such terms as "false" and "faithless" as applied to that work (I cannot admit that they are applied to its author), because, although in the multiplicity of the statements it contains, some may not be perfectly correct or perfectly trustworthy, yet I believe such exceptions to arise solely from the difficulty of attaining perfect accuracy, and therefore not deserving the epithets in question. On the other hand, I cannot but regret that Mr. Woods should have stated his objections in the manner he has done. "The whole charge against me," says Mr. Woods, "was, that I had not given certain habitats of plants, when I knew them, or ought to have known them, since they had been published in the works of Mr. H. C. Watson." Now the reviewer, as an example of insufficient habitat, cites *Lycopodium annotinum*, and of erroneous habitat, *Lastrea fœnisecii*, plants the habitats of which Mr. Watson, as far as I am aware, has nowhere given.

The other books noticed during the present year are three: 'A Manual of the British Marine Algæ,' by W. H. Harvey, M.D.; 'A Flora of Leicestershire, comprising the Flowering Plants and Ferns indigenous to the County,' by Mary Kirby, with Notes by her Sister. 'Entwickelungs Geschichte der Farnkräuter,' von J. Grafen Lesczyc-Suminski. The first of these has taken its station among the standard publications of the day; the last is one of those German wonders which, whether intrinscally true or somewhat poetical, we are too apt in this country to regard with distrust. It is intended to resume the notice at an early period, but the testing of Suminski's

observations, by an examination of the objects themselves, is attended with considerable labour, and requires a large share of patience and perseverance; and as it is highly important that a premature judgment on this most interesting question should not appear in the pages of the 'Phytologist,' I feel confident that my readers will pardon what may appear an uncalled-for delay in the completion of a literary notice. The theory has been condemned on the continent by Schleiden, and adopted in this country by a reviewer in a Quarterly Journal of Medicine; but from a perusal of the judgment pronounced by both these writers I am led to doubt whether either has possessed the means of testing Suminski's accuracy. A difficulty presents itself on the very threshold of the inquiry. Suminski describes certain actions as taking place within a cell, the walls of which are fleshy and perfectly opaque. Now it is remarkable that neither his advocate nor his detractor explains how they obtained a view of the interior; neither does anything they have written justify the conclusions at which they have respectively arrived.

On a former occasion I expressed an opinion in favor of those papers which record the observations made during a botanical ramble. I entertain precisely the same opinion of them still. I consider that such papers afford an agreeable and convenient mode of communicating our thoughts to a larger circle than can be reached by a private letter; and the points to be kept in view in penning them, are, *first*, to render them instructive, by making known new stations, pointing out geological relations, restricting or extending the supposed range of variation in a species, and, in fact, adding in any manner to our previous knowledge; and, *secondly*, by never reciting as discoveries such stations for plants as were previously generally known, unless it be with a view of recording that the species still exists in the described locality. It would not be difficult to select from the pages of the 'Phytologist' localities recorded as new, although they have previously appeared in 'English Botany,' the 'British Flora,' both 'Botanist's Guides,' and 'Cybele Britannica.' This seems to me objectionable, and certainly implies a want of

acquaintance with the works in question. The last-named work, being last also in date, contains, as far as it has yet gone, a digested summary of the stations published in all the rest, in addition to the mass of information conveyed in the 'Phytologist,' and the result of the author's personal observations during his excursions. Thus the topography of our plants has become patent to all inquirers; and to repeat without comment prior observations, implies either a want of care or a want of courtesy. I do not hesitate to believe that the first is invariably the case. I am, however, of the decided opinion that a local or comital enumeration of species affords the best of all opportunities for communicating such casual observations as might and must ever occur in botanical conversation, and which certainly give a chief zest to the pursuit; and I recommend this plan in preference to all others, well knowing how superficial is the idea of a local flora which one obtains by means of a hasty ramble, compared with that resulting from a long residence and intimate acquaintance with the neighbourhood described. How many tracts throughout the kingdom would repay a minute examination!—and how many botanists are there who have both leisure and ability to perform the task! I hope the hint will not be lost, but that many who read these observations will be induced thereby to become the botanical historians of their respective homes.

In conclusion, I beg to offer my very sincere thanks to those botanists who have so kindly and cordially supplied me with contributions, and at the same time I most earnestly solicit their continued assistance. I know not how to state more emphatically than I have already done the estimation in which I hold the slightest fact connected with Natural History. It matters not how soon or how entirely the discoverer or recorder may be forgotten: the fact remains for the instruction of all ages. Thus the ternary arrangement of the floral envelopes in a great proportion of the endogens; the quaternary and quinary arrangement in large orders of exogens; the strict analogy between regular and irregular corollas, so beautifully exemplified by the occasional return of the latter to the former, as in

the pelorian snapdragons and violets ; the extreme rarity of instances in which any species of plant produces in its corolla the three usual colours, two being the utmost variation in which nature seems disposed to indulge ;—these and a hundred other instances might be adduced to prove the utility of recording facts : directly they are made patent they become part and parcel of the science ; so obvious, indeed, that they are never in future to be overlooked, though formerly unknown to *all*, and even now escaping the notice of *all but the instructed*. It rarely, indeed, falls to our lot in the present day to be the first to notice facts like those I have here incidentally mentioned ; neither do we all possess the discriminating power of originally detecting such facts. We cannot all be Robert Browns, but we can all add our mite to the general mass of knowledge, and we owe this return for the instruction we have received.

EDWARD NEWMAN.

9, Devonshire St., Bishopsgate,
December 12, 1850.

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A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 744).

Plantago major. In meadows, pastures, waste places and by roadsides; everywhere extremely common.

A few specimens of *P. Psyllium*, *arenaria* or *Cynops* (I am unable to distinguish between these three in the dried state), were found on the loose sand of the Dover at Ryde, in May, 1843, by Thos. Brown, Esq., with one of which he kindly presented me. The specimen is small and stunted, and agrees better with *P. Cynops*, I think, than with the other two species. Both this and *P. Psyllium* are rather southern plants, and the Ryde specimens, to whichever of the three kinds mentioned above they belong, have in all probability been casually introduced, and have since disappeared or been eradicated by recent improvements. *P. arenaria*, nevertheless, may reasonably be expected to prove a British species, as it inhabits many of the neighbouring countries of the continent as far north as Hamburg.

Littorella lacustris. On the margins and in the shallows of pools, lakes, canals, &c.; rare? Not yet noticed in the Isle of Wight. "Wolmer and Frensham Ponds are in a manner paved with it;" Mr. Wm. Pamplin. I have seen it in the former station. Wolmer Forest and Shortheath; Dr. T. Bell Salter!!! Plentiful in Sowley Pond (three miles E. of Lymington) "in large beds quite under water;" Mr. Robert Jefferd!! Probably frequent on the old forest district of the county.

OBS.—I omit *Amaranthus Blitum* from the catalogue of the plants of this county, although it has been indicated to me by the Rev. E. M. Sladen as growing at Warnford, near West Meon, because I think it very possible that some species of *Chenopodium* (probably *C. polyspermum*) was mistaken for it by Mr. S. It has inadvertently crept

into the list of Hants plants in the 'New Botanist's Guide,' where the station at Ripton must be expunged, as on referring to the authority cited, that of the 'English Flora,' it will be seen that Ripton in Huntingdonshire is the place specially mentioned by Smith. Still, *A. Blitum* is not an unlikely plant to occur within the county on waste ground, dung-hills, and in gardens; I am told it is persistent within certain limits, and by no means rare on the Surrey side of the Thames near London, at Wandsworth, if I recollect rightly, and as a weed in garden ground. *A. retroflexus* would appear to have occurred (wild?) in Hertfordshire. It is frequent in the north of France, and I have remarked either this or *A. sylvestris* in plenty at Paris formerly. *Polygonum arvense*, an inconspicuous plant of dry, sandy fields, belonging to this order (*Amaranthaceæ*) I should not think strange to hear had been discovered in England. It is indigenous to France, Belgium, and most parts of Germany.

Schoberia maritima (*Chenopodium maritimum*). On muddy seashores, in salt-marshes, and about the mouths of tide rivers; very common both here and on the mainland of the county. Plentiful along the Medina betwixt Cowes and Newport. Brading harbour and Newtown salt marshes; abundantly. Profusely in a salt-marsh meadow at Springfield, near Ryde, which is covered with this species exclusively. Shores of Portsmouth and Langston harbours, Hayling Island, &c., abundantly. Var. β . Larger, stems spreading, procumbent, almost woody, root thick, ligneous, biennial? (Wahlenb. Fl. Succ. ed. altera, i. p. 168, supra). In loose sand at Springfield; plentifully. In Newtown marshes, as about Newtown Saltern, &c., abundantly.

Schoberia fruticosa (*Chenopodium fruticosum*) should be looked for along the coast of Hants. It grows in profusion on a part of Poole harbour called the Baiter, on a neck of land which is nearly an island at high water, and is particularly abundant there near a small building once a powder-magazine, and still known as the powder-house. On this peninsula it forms large bushes, three or four feet high, with excessively hard and perfectly ligneous stems; some of the oldest have existed before Dr. Salter, who is a native of Poole, can remember, and I cut down a stem as thick as my wrist some years ago, which was nearly black with age. The plants do not grow on mud, but on the diluvial deposit of the Poole basin, mixed, perhaps, with a proportion of sea-sand. It may very possibly be found on some part of our Hampshire line of coast, which, with its various indentations, is of considerable extent, and has yet been but imperfectly and partially ex-

plored botanically by myself and others. The genus *Schoberia* has been properly separated from *Chenopodium* by the spiral embryo and want of albumen, as well as by the great difference in habit, in both which it approaches *Salsola*. Yet it is remarkable, that whilst Smith removed *Sch. fruticosa* from *Chenopodium* to *Salsola*, he retained *S. maritima* amongst the *Chenopodia*, and so very unnaturally separated generically two plants having the most intimate specific relationship. The seeds of *Schoberia maritima* are horizontal, thrice as large as in *Schoberia fruticosa*, orbicular-reniform, considerably flattened, with a somewhat indistinct border, purplish black, shining, and very finely and copiously reticulate-striate. In *Schoberia fruticosa* the seeds are vertical, nearly globose, scarcely, if at all compressed, without a border, jet black, exquisitely polished, and, under a high magnifier only, appearing faintly reticulated. In both species the embryo is equally spiral, surrounding but little or no albumen. Moquin-Tandon in his 'Monographia Chenopodearum' places both our native species of *Schoberia* in the genus *Sueda*, but in different sections, whilst, in his later arrangement of the order *Salsolaceæ*, forming Part 13 of Decandolle's *Prodromus*, he disunites them again generically, as Smith had done, placing *Schoberia fruticosa*, as before, in *Sueda*, and transferring *Schoberia maritima* to his own new genus *Chenopodina*, mainly on account of the horizontal position of the seeds, which in the other is vertical, as we have just now seen. But the intimate alliance between these two species proves how artificial is the generic character founded on the position of the seed, which in some *Chenopodiums*, for instance, *C. glaucum*, is vertical in the lateral and horizontal in the terminal flower of each cluster.

Salsola Kali. On sandy sea-shores; frequent in the few localities fitted for its production in the Isle of Wight, and I believe along the coast of the county generally. Plentiful on Bembridge and St. Helen's Spits. Sandown Bay; Mr. E. Lees in New Bot. Guide Suppl. (I am not sure of having seen it there myself). Very abundantly along the south shore of Hayling Island, if I recollect right, and in Portsea Island, but I quote from memory, finding no entry amongst my notes to that effect of a plant so generally common as this. I did not remark it, however, on the sand-hills at Christchurch Head, or on the shore to the eastward of Muddiford, both which stations I found unusually deficient even in the commoner sea-side plants.

Chenopodium olidum. In dry waste places about towns and villages, and especially at the foot of walls and amongst rubbish, but certainly not common in Hants. Very rare in the Isle of Wight.

Rather abundantly at the foot of an old and long wall at East Cowes, where I have known it for at least ten years; but the species was first observed and pointed out to me in this island by my friend the Rev. Darwin Fox, growing in his garden at Binstead, but very sparingly, and he suspected introduced by accident from seed brought by him out of Derbyshire. Observed for some years past under a wall in Mr. Butt's garden, at Ryde, though sparingly, by Dr. Salter !! At Gosport here and there; rather plentifully under the wall of Trinity Church Cemetery. At Fareham, under a wall, October, 1848. Fareham, Wallington; Mr. W. L. Notcutt !!! By the Magazine at South Sea Castle, Portsea Island; Mr. Jacobs !!! and probably in many other places in the county. More frequent usually along the coast than inland, but I have seen it plentifully at Guildford, in Surrey, and other interior towns. The smell of this repulsive little species has been compared to that of stale salt fish. I can liken it to nothing so much as to the odour with which our common snake (*Natrix torquata*) assails the olfactories of the zealous herpetologist who ventures on its capture in the breeding-season, and who is more to be pitied than the captive, as he vainly tries with soap and water to purify his hands and clothes from the slimy exudation that bewrays them. The smell of the plant is nearly as difficult to be got rid of, and I recollect once sending a specimen to a female friend of my own, who was so annoyed by its offensiveness, that my well-meant contribution to her collection of plants, instead of being received with thanks, was thrown by her out of window without farther ceremony. Gerarde (em. p. 327) is pleased to be facetious on the subject of this plant, but the nature of his humour is probably of such a kind as makes it safer to take its excellence for granted, rather than more fully to appreciate its point by a too nice inquiry into the import of his remarks. This, unlike the generality of small annuals, is very persistent in its several stations.

Chenopodium polyspermum. In low, damp, muddy places, waste ground, gardens, about dung-hills, and even in woods. By no means unfrequent in the Isle of Wight, though it cannot be called here a common plant, unless relatively, as compared with most other species of the genus with us. Unlike the last, it is fugacious in its habitats, seldom remaining long in one station without becoming scarce, or vanishing altogether to appear elsewhere. Cultivated fields near Ryde, Binstead, and, I understand, a weed in the garden at Pondwell. Frequent on old manure heaps at Sandown. About Shanklin, in the garden of the Shanklin (late Williams's) Hotel. In a wood (Sham-

bler's Copse) near Cowes. Waste ground betwixt Yarmouth and Shalfleet. By the lower farm at Ningwood. Merston, plentifully, 1847. Abundant in 1844 in several places, as Godshill, Newchurch, Shanklin, Wraxall, America, &c. Northwood Park; Miss G. Kinderbee !!! East bank of the Medina below Copping's Bridge (Newport); Mr. W. D. Snooke (Fl. Vect.): and in various other places occasionally. I am unable to state its frequency in mainland Hants, but as far as my observation has yet extended, it appears to be rarer considerably than in the Isle of Wight, as I have seldom lighted on it myself, nor have I but in one instance received notice or specimens from others. At Iford, near Christchurch, October 2nd, 1849. Heron Court; Mr. J. Curtis in litt. and Brit. Entom. vol. ix. tab. 402, ex loco. It is not mentioned in Mr. Notcutt's List of the Plants about Fareham (Phytol. ii. p. 201), but is probably dispersed perhaps sparingly throughout the county. The var. *acutifolium*, E. B. xxi. t. 1481, is the prevailing, if not the only form of this plant with us in Hants.

Chenopodium urbicum, var. *intermedium*. Next to the following (*C. album*) this is by far the most common species of the genus in Hants, at least in the Isle of Wight. Its usual stations are on dung-hills, rich waste ground in the outskirts of towns (hence its specific name) and on village greens, but most particularly in and around farmyards. Abundant at Troublefield and Ninham farms, near Ryde. Common on St. Helen's Green and at Sandown, about the cottages and farms. At Ventnor and Niton. By Yafford Mill. Grange by Brixton. At Adgeton, Arreton, Chillerton, Hasely, Brook, Compton, Palmers, Upper Morton, Yaverland, Rill and other farms, often in great abundance. Probably frequent throughout the county, though I have myself noticed it as yet in but few places on the mainland. At Blashford Green, Ibbetley, and elsewhere betwixt Ringwood and Fordingbridge. By Sowley farm. Wallington (near Fareham); Mr. W. L. Notcutt! Var. β . Spikes ramose, subcymose; upper leaves nearly entire. In the farm-yard at Sheepwash, by Appledurcombe, and in a lane close to Yaverland farm. At Yafford Mill, near Shorwell. The Rev. G. E. Smith has observed the same variety in Sussex, but I suspect it to be a monstrosity, and to arise from a diseased state of the plant, having never seen this form of inflorescence on large and vigorous individuals, but only on small discoloured and unhealthy ones. The inflorescence in this variety resembles that of *C. murale*. It has come up in St. John's garden, near Ryde, from seed, I believe, of the common form, nor is the transformation of the inflorescence from

the simple spiked to the subcymose character, complete in these casual specimens.

Chenopodium album. In cultivated and waste ground, fields, gardens, on rubbish, dunghills, &c., most abundantly everywhere. Var. β . viride, *C. viride*, *L.* Leaves oblong-lanceolate, more or less (often quite) entire, inflorescence cymose, racemes nearly leafless, straight or recurved. Common. Obs. — *C. ficifolium* must be expunged from the Hampshire flora, its occurrence at Wallington, near Fareham, as given by Mr. Notcutt in his Catalogue of the Plants of that vicinity (*Phytol.* ii. 211), being, as Mr. N. informs me, a mistake on his part. *C. opulifolium*, a species too closely, I should fear, akin to *C. album*, and differing chiefly in its broader, blunter, almost three-lobed leaves, will probably be found in England eventually.

———— *murale*. In waste and cultivated places, kitchen gardens, under walls and in bye-streets of towns, on dunghills, rubbish-heaps, &c., but not common. Rare in the Isle of Wight. At East Cowes in several places; sparingly. At Yarmouth and Ningwood. In Northwood Park; very sparingly, September, 1844. Rather frequent at Newchurch, in the neglected cottagers' gardens, and at the vicarage. Under the rocky cliff on the right-hand side of the road from St. Lawrence to Niton, a little beyond the turning off (at the shoot) to Whitwell, in plenty, growing with *Beta maritima*; Miss O. Hadfield! I am induced to believe there must have been some mistake in the locality, as, although the specimen is an indubitable one of *C. murale*, I have never seen this species growing beyond the bounds of cultivation, or at least remote from the abodes of man. The station in question is under a mass of rock, high up on the steep bank above the road, in a perfectly wild, retired situation, and on visiting it for the purpose of verifying the correctness of the habitat, I found no trace of the *Chenopodium*, whilst of the *Beta* there was still abundance. At Newport, Freshwater, Sandown, &c., in plenty; Mr. W. D. Snooke (in *Fl. Vect.*); but there is, I think, no doubt that *C. urbicum* was the plant intended in that little work, as *C. murale* has never been seen by me in the alleged places, and so far from being plentiful, the plant is remarkably sporadic with us wherever it does occur. Apparently not very unfrequent along the coast of the mainland, and its two adjacent islands of Portsea and Hayling. In the latter I found it last year and this, in considerable plenty on a bank of sea-weed, close behind the ferryman's house, opposite Cumberland Fort, and have picked it in the former at Milton. In considerable plenty on an extensive plot of ground about half a mile or less inland

from Southsea Castle, evidently former garden ground, but now waste, and railed off for building-lots, growing with abundance of *Mercurialis annua*, and a number of plants of the variety of *Datura Stramonium* with purple stems and flowers (*D. Tatula*, *L.*), which last I had never seen naturalized in England till now, November 5th, 1849. At Clayhall, betwixt Gosport and Alverstoke. At Lymington, Christchurch, and at Avon, near Sopley, 1849. Lower Quay, Fareham; Mr. W. L. Notcutt! A widely-dispersed species, which I have gathered at New York, and notably about Norfolk, in Virginia. *C. hybridum* may with reason be expected in the county. Dr. Salter finds it in his father's garden at Poole, but I should think it had become naturalized there through casual introduction. Also native to America as well as Europe: I have collected it near Montreal, and in Canada West.

Chenopodium rubrum. In similar places with the last, but a paludal and even sylvestral species occasionally, not as that merely ruderal, septal or viatical, occurring in low muddy or wet sandy places, salt-marshes or margins of rivers and ponds; more commonly, however, in rich waste ground about houses, farms, and on dunghills, &c. A very rare species in the Isle of Wight. On a manure-heap by Gatehouse farm, a few miles from Ryde, sparingly, October 7th, 1844. In considerable plenty on an old compost-heap by Ningwood Green farm, near Shalfleet, August 1st, 1845. In a truly wild and natural station on the half-dried-up muddy edge of the pond near Hardingshoot farm, in great plenty, September 30th, 1844. In the two former stations the plant is now, I believe, quite extinct, but it may be found with certainty every year at Hardingshoot, in tolerably dry seasons, when the water has left the flat margin of the pond uncovered, but in a most remarkably dwarf state, the largest specimens being under two inches high, and many can be covered with the tip of the finger. The stems are either quite simple or branching from the root, and prostrate on the mud to the extent of one, two, or even three inches. When sown or removed into a garden, the plants are developed into the usual erect form of the species as seen in waste ground, or on dunghills. Freshwater Gate; Mr. W. D. Snooke in *Fl. Vect.*; but I have never seen it there, nor have I any station to give for this species as yet on mainland Hants, although its occurrence there can hardly be doubted. This species has been separated from *Chenopodium* and removed to *Blitum*, but it has neither the habit nor the enlarged succulent perianth of that genus; the stamens vary from one or two to five (mostly, I believe, three), the seed is partly vertical, partly horizontal, as in some other true *Chenopodiums*, of which it has per-

fectly the habit and appearance, closely approaching *C. urbicum*, which is often mistaken for it. *C. botryoides*, a species I have no practical acquaintance with, should be looked for along the sea-coast.

Chenopodium glaucum. In low, rich, waste ground and on dung-hills, &c.; very rare. Abundantly on a piece of low waste ground at Thorley, near Yarmouth, just outside of Thorley farm-yard, near the church, betwixt the churchyard and the high road, 1837. On an old manure-heap in the park at Swainston, with stems quite procumbent, August, 1839, sparingly. Still there, and in somewhat increased quantity, in September, 1842, but lost, by the removal of the heap, in 1843. Springing again in 1844 in some plenty from the ground where the heap had stood, but not since observed. At Thorley this rare British species is fully established, and may be obtained every year, but is sometimes covered under the compost from the adjoining farm, which is periodically deposited on the spot, and then the plant can only be gathered in small quantity on the contiguous muddy soil, but when the bulk of manure is small, the vacant space is covered with this *Chenopodium*. I am not aware of any station for the present species on the mainland of the county. In the specimens from this island I find the central flowers of each cluster or glomerule elevated on a very short and thick peduncle, and bearing a horizontal seed, the lateral flowers clustered around the footstalk of the central one, and carrying vertical seeds.* Perianth three or four-cleft. I found this species in moist spots in the Navy-yard at Philadelphia, and on waste ground in the city itself: it had not, I believe, been previously noticed in the United States.

———— *Bonus-Henricus*. In waste ground, about towns, on village-greens, by road-sides, in churchyards and about farm-houses; by no means common in the Isle of Wight; much more frequent on the mainland of the county. Farm-yard at Ninham, near Ryde. Near Quarr Abbey, very sparingly. Farm-yard at Apse, near Shanklin, abundant. At Rew farm, near Appuldurcombe, and abundant by the road-side opposite the same. At Wellow, Arreton, Shanklin, Gottens, and elsewhere in the island, occasionally. At Bishopstoke; Blackmore farm, Wolmer Forest. By the church at Crux Easton, and at Kingsclere. At Hambledon in several places; Petersfield; near farm-houses betwixt Clanfield and East Meon, in plenty; Sel-

* There would seem to be no certainty in the position of the seeds in this species. Koch found them more frequently horizontal than vertical, just the reverse of my own experience.

borne village ; Binstead, near Alton ; Blashford, near Ringwood, on the road to Fordingbridge. Fareham ; Mr. W. L. Notcutt !!! Warnford ; Rev. E. M. Sladen. About the Priory (Selborne), plentifully ; Mr. Wm. Pamplin. Andover ; Mr. Wm. Whale ; and I have every reason to believe frequent throughout the county. This plant has the habit both of *Amaranthus* and *Spinacia*, and is familiarly known as "wild spinage" in the Isle of Wight, where, however, if it was ever used as such, as it still is in some parts of the kingdom, no tradition of its employment as a pot-herb here has survived its disuse. Better entitled, from its peculiarity of habit, perennial duration, and very elongated stigmas, which are sometimes as many as four or five, to generic distinction. It formed the genus *Agatophyton* of Moquin-Tandon, but that author in the *Prodromus* refers it to *Blitum*.

Beta maritima. Abundant, often to profusion, in muddy salt-marshes, on old walls, chalk cliffs, banks and waste ground along the sea-shore, or even a little inland, on rocks, &c. ; on most parts of the coast, both of the island and main. In great plenty by the shore between Springfield and Sea View, and elsewhere near Ryde. Common at Cowes and Yarmouth. Profusely on the ledges or terraces of the cliffs betwixt Freshwater Gate and the Needles, called meads and greens by the cliffsmen (see *Orobanche Picridis*, iii. 604). At the foot of the rocks of galt or firestone that hem in the Undercliff on the north, as in the Pelham Woods, behind St. Lawrence, many hundred yards from the sea-shore, and some two or three hundred feet above it, in great plenty. Common, I believe, almost everywhere on the opposite coast, in Hayling and Portsea Islands, at Porchester, &c. In common with the last, usually called "wild spinage" by the poorer classes, but also beet, and is by them gathered from the shore, boiled, and eaten as greens with the pork or bacon that forms so constant an article in the dietary of our Hampshire peasantry. Dr. Salter remarks to me that the flowers of the sea-beet possess a powerful fragrance, like that of *Clematis* (*C. Flammula*) and new hay conjoined. He has also perceived the same agreeable odour in the flowers of black mustard (*Brassica nigra*).

Salicornia herbacea. On muddy salt-marshes, shores and inlets of the sea, abundantly. On each side of the Medina above Cowes. Shores of the Wootton River and of the Yar. Salt-marshes at Bradling, Newtown, &c. Var. β . *procumbens* ; stems prostrate. *S. procumbens*, *Sm.* Shores of Yarmouth harbour, and abundantly with α . in the Newtown salt-marshes. Abundant on the coast of mainland Hants, where, as in this island, it grows even in the brine in the high

state of concentration in which the latter is found in the shallow rectangular reservoirs (brine-pans) into which the sea-water is admitted for evaporation by the sun's heat before it is pumped into the boilers for granulation, which brine is nearly at the point of saturation when taken from the pans. "A large state of this plant, one to two feet high, with a woody stem, and much resembling *S. fruticosa*, *L.*, occurs in the salt-marshes near Portsmouth. Professor Don, however, considers it merely as a form of *S. herbacea*;" Dr. Macreight, 'Manual of British Botany,' p. 195. This I have not hitherto fallen in with, but a great deal of the mainland line of coast is still unexplored by me, and even the shores of Portsea Island have been very partially examined in person. If our *S. radicans* (see below) be merely, as Moquin-Tandon marks it, a variety of *S. fruticosa*, *L.*, may not the large form found by Dr. Macreight be the true *fruticosa* of Linnæus, notwithstanding the opinion to the contrary of the late and much lamented Professor Don, who, with all his extensive knowledge, was occasionally hasty and careless in pronouncing on species submitted to him for his decision?

Salicornia radicans. In similar situations with the foregoing, but far less generally abundant. On Ryde Dover, and by the Medina above West Cowes, on the edge of the little salt-pools left by the ebbing of the tide. Plentiful in Newtown salt-marshes. "Abundant near Cumberland Fort (Portsea Island) and Anglesey" (near Gosport); Dr. Macreight, Man. Brit. Bot. Shore at Cams (by Fareham). The Salterns (Fareham); Mr. W. L. Notcutt. This species is referred by Moquin-Tandon to his genus *Arthrocnemum* (Monogr. Chen. p. 111), of which *Salicornia fruticosa*, *L.*, is the type, and our *S. radicans* considered as a variety of that plant by him. According to Moquin-Tandon *Arthrocnemum* differs from *Salicornia* in the want of a wing or border to the perigone, and in the semiannular embryo (in *Salicornia* the embryo forms a complete ring around the albumen). But besides that the membranous appendage above mentioned is very slight and inconspicuous in *Salicornia*, and the incompleteness of the annular curvature of the embryo a character of degree, and one very troublesome to recur to in practice, the habit of these genera is too similar to warrant the establishment of *Arthrocnemum* on the slender distinctions afforded by a few *Salicornias* which barely offer even good sectional characters.

A highly curious instance of the strongest possible analogy in form, aspect and habit between plants widely separated in natural affinity, is exemplified in the *Salicornia* of our salt-marshes, and a West

Indian plant, *Batis maritima*, which, like the former, is exceedingly social, and covers the muddy margins of the lagoons and salt creeks in Jamaica with a dense under-growth of yellowish green, visible at a great distance. So similar is the *Batis* in external structure, aspect and habit to a *Salicornia*, that on first meeting with it, I collected specimens without the slightest suspicion that I was gathering anything but a species of glasswort, and even supposed it to be only our British *S. herbacea*, with the stems rendered very luxuriant and arching by difference of climate. Yet *Batis maritima* has no real relationship to *Salicornia*, but is placed by Lindley (*The Vegetable Kingdom*) as a tribe or suborder (*Batideæ*) of *Empetraceæ*. The plant is diœcious, and the structure of the ripe fruit said to be unknown to botanists, but from having no books to refer to at the time, and moreover completely deceived by appearances into the belief of its being only a *Salicornia*, I lost the opportunity afforded me of examining a genus of uncommon botanical interest, for in the dried state the parts shrivel and become undistinguishable.

In the subjoined list of *Atriplices* indigenous to this county and island, I am compelled to acknowledge my ignorance of the recent species by which the genus in Britain has been augmented through the labours of Mr. Babington; ignorance not arising from any impression of the futility of his praiseworthy exertions to elucidate this most perplexing tribe of *Chenopodiaceæ*, or to save myself the trouble of following the teaching of that able botanist in the detailed descriptions he has given us in the *Manual*, but simply through inability to unravel the knot of difficulties which attend the discrimination in their multitudinous forms and varieties of *A. erecta*, *prostrata*, *patula*, *deltoidea* and *rosea*, and from a conviction that British and foreign authors apply the same names to very different plants, and that the nomenclature is still in a very shifting and uncertain state abroad as well as at home. For these reasons I prefer waiting patiently the result of farther researches by those who are willing to devote their time to a task of such labour and difficulty, rather than hazard giving to our Hampshire species names which may hereafter be discovered to have been falsely imposed.

Atriplex nitens. This species must be expunged from the list of Hampshire plants, so far as concerns its right to a place in the floral census of the county, either as indigenous to or completely naturalized therein. I have lately met with it in several and distant parts of the county, and clearly ascertained it to be still an object of cultivation in the gardens of the poorer classes under the name of French

spinage, from whence it sometimes escapes, or is carried out with refuse or manure into the adjoining fields and waste places, but is nowhere persistent with us in such situations. At most, therefore, it can only merit a passing notice with *Reseda alba*, *Nicandra physaloides*, and some other foreigners, transitory outcasts or stray subjects of our Flora hospita.

Atriplex littoralis. On the muddy beach, upon banks and along ditches by the sea, in salt-marshes, &c., not uncommonly. On the sea-beach betwixt Ryde and Binstead. By the Medina above Cowes at Medham brickfield. Most abundantly along the shore betwixt Springfield and Nettleston Fort. Under the shore nearly below Bouldner, by Yarmouth. In Thorness Bay and Newtown marshes. Coast near Cowes; and most other parts of the coast; Mr. W. D. Snooke (Fl. Vect.). I have not attended to the distribution of this species on the opposite mainland coast, but suppose it to be there pretty general. Betwixt Southampton and Netley. The shore (Fareham) everywhere; Mr. W. L. Notcutt.

———— *marina*. With the last, and possibly not rare, but having till lately been accustomed to look on it as a toothed-leaved variety of *A. littoralis*, I find no stations recorded for it apart from the last. Under the shore nearly below Bouldner, with *A. littoralis*, and I think seen elsewhere in the island. Probably not unfrequent on the opposite mainland coast. Hayling Island. Perhaps not specifically distinct from *A. littoralis*, but the closed perigone in opposition to the open one (when in seed) of the latter may, if constant, be allowed to weigh in favour of their separation.

———— *angustifolia*. In waste ground, fields, gardens, by roadsides, &c., very common everywhere. *A. erecta* is no doubt a native of the county and Isle of Wight, as Mr. Babington says it is common on cultivated land. With my present imperfect knowledge of these protean plants, I probably confound this and the next together.

———— *patula*. In similar places with the last; universally, if I do not mix it up with other forms or species of *Atriplex*. A large straggling, prostrate or decumbent plant, with broadly triangular or hastate leaves, more or less white or hoary with crystalline efflorescence, is very common along the coast by high-water mark, as on the shores of Brading harbour, near Carpenter's, &c., along the shore betwixt Ryde and Binstead, and plentifully on the shore north of Shanklin Chine, &c. This I have not yet carefully examined, as it perhaps deserves, having been accustomed to esteem it a sea-side form of *A. patula*, and now suppose it may be the *A. prostrata*,

Bouch.? of Babington's Manual. If so, it would seem from Mr. B.'s account to be rare in Britain; in this island at least it is very abundant. I suspect it is the *A. hastata* of Wahlenberg's 'Flora Suecica,' 2nd edition, p. 683, and perhaps of Linnæus himself, Fl. Succ. edit. 2, No. 921.

Atriplex rosea (Babington's Man.), scarcely of Linnæus? or the continental botanists. Waste places, &c. I believe very common. Shore between Ryde and Binstead. Abundant on the Dover, Ryde, and betwixt Ryde and Nettleston; Mr. C. C. Babington !!!

————— *laciniata*. On sandy sea-shores; not common. On the Spit at Norton, opposite Yarmouth, in tolerable plenty. On the extreme point of the Spit at St. Helen's; sparingly. In Ventnor Cove some years ago, but I doubt if it can be found there at present. Rather frequent on the shore betwixt Shanklin and Sandown, August, 1844, but its footing on that part of the coast is very precarious (see remarks on *Lathyrus maritimus* in a preceding part of these Notes). Shore between Sea View and Brading; Mr. Wm. Wilson Saunders. I have not remarked this plant as yet on the coast of mainland Hants, but cannot doubt of its existence there. It were to be wished that our other species of *Atriplex* were as well marked and invariable in character and appearance as the present, which approaches the genus *Halimus* somewhat in the silvery scaliness (not mealiness) of the leaves, and in the rounded, scarcely angular or furrowed, almost woody stems of a pale yellow or reddish colour. The leaves, which remind one by their shape of the great shrubby orache of the gardens, *A. Halimus*, *L.*, in common cultivation here for sea-side fences, and which Moquin-Tandon retains in this genus, emit the fœtid odour of *Chenopodium olidum*, but in a far less degree. I remarked the fructiferous perigones to be commonly pierced by some insect unknown to me, and the enclosed seed devoured by it.

Halimus portulacoides. In muddy salt-marshes, and especially on the edges of salt pools, creeks, ditches, and tide-rivers, also on dry chalky cliffs at a considerable elevation above the shore. An exceedingly abundant shrub on every part of the Hampshire coast suited to its growth. Banks of the Medina above Cowes in plenty, and along the Wootton Creek. Abundantly in Gurnet Bay, but of small growth there. Fringes the marsh ditches and edges of the brine-pits at the salt-works at Newtown in luxuriant profusion. By the Yar at Norton. On the ledges of the lofty chalk cliffs called *meads* and *greens*, between Freshwater Gate and the Needles, in various places,

as on the Main Bench, Rose-hall Green,* and above the west end of Scratchell's Bay, &c., in great abundance. Yarmouth, and Brading harbour, in great plenty; Mr. W. D. Snooke, Fl. Vect. !!! Profusely in Hayling and Portsea Islands, and in almost every salt-marsh ditch and muddy creek along the entire line of coast from Emsworth to Christchurch. I have never seen the Sea Purslane with the leaves acute, as they are drawn in E. B. It is possible, though I think not very probable, that *H. pedunculata* may be found in salt-marshes on the Hampshire coast. The species has hitherto shown itself an extreme instance of Mr. Watson's Germanic type of distribution, and would appear to be exactly coextensive in its range with another British species, the most perfectly and purely eastern plant I know of in this country, I mean *Hippophæe rhamnoides*.

Rumex maritimus and *R. palustris*. One or other, if not both these species are still desiderata to the Hampshire flora, but it is to be hoped will not long remain so. I find the following entry in pencil, without date or comment, in my MS. Flora, which I had overlooked till this moment: "One or other of these (*R. maritimus* or *R. palustris*) Mr. G. E. Smith found at the entrance to Shorwell." I now remember to have searched for it there a few years back without success, and I must trust to my reverend friend to confirm the truth of this statement, or correct it if erroneous. Although a local and generally scarce species in Britain, there is nothing to discourage the idea of the probable existence of both within our limits, and they should be looked for in marshy meadows, the sides of pools, and other low, moist situations. One or both have occurred in the conterminous counties of Sussex and Dorset, and it is not likely the intermediate one of Hants should want them altogether.

——— *conglomeratus* (*R. acutus*, Sm.). Common everywhere on waste ground, about houses, by road-sides, and in damp pastures, &c.

——— *sanguineus*. Var. β . *viridis*. Common in most places by road-sides, in woods, and shady, moist situations. The variety with bright red veins to the leaves I have not yet seen in this county and island, but they are often partially coloured in the commoner form above given.

* For an account of these shelves or ledges see *Orobanche Picridis* in a former part of these Notes, at p. 604 of vol. iii. The distinction made by the cliffsmen between *meads* and *greens* is not correctly stated in the foot-note. Such ledges as are covered with a miscellaneous vegetation, like that described in the note, retain the latter name, whilst meads are understood to designate similar projections that are clothed with grass only.

Rumex pulcher. In dry waste places, pastures, borders of fields, by road-sides, under walls, on hedge-banks and in churchyards, by no means unfrequent over the entire county and Isle of Wight. Rare about Ryde. By Quarr Abbey, but sparingly. Border of a corn-field above Sandown Bay, and on the virgin turf of Brading Down near its summit and base, in considerable plenty. On the shore at Bembridge. At Bonchurch and elsewhere in the Undercliff. In various parts of Freshwater Island, as at Freshwater Gate, &c. Very common about Yarmouth; abundant betwixt Yarmouth mill and the town. Particularly partial to churchyards, both in this island and on the main, as in Calbourne, Carisbrook, Newchurch, Freshwater, Thorley, Brixton, Binstead, and most other churchyards in the island, sometimes very abundantly. Occasionally on the tops of our highest downs on the short native turf, but by far the most frequent in the lower and warmer country, being quite a southern species, and probably sensible to severe frost, since in the interior of the European continent, as Germany, it follows the depression of the isothermal curves to the south-east, and in that country barely attains the parallel even of the Isle of Wight. Yet with us it is hardly less common inland than in the mitigated climate of the coast, as I find it dispersed over most parts of the county I have yet visited. Meadows at Porchester, Porchester Castle, sparingly. Havant churchyard. Near Andover. Titchfield. Petersfield and Hambledon churchyards, &c. Fields near the work-house (Fareham); Mr. W. L. Notcutt. The Fiddle Dock is abundantly naturalized in some parts of the United States, but only in the south, doubtless from inability to resist the northern winters; I found it quite a weed in pastures and waste places at Charleston, New Orleans, and other southern cities. The epithet of pulcher, to judge by the ungraceful rigidity, straggling habit and general homeliness of its appearance, must have been given to this species in a mood of jocular antithesis; a less attractive weed could hardly have been selected on which to bestow the praise of beauty than this.

——— *obtusifolius*. In meadows, pastures, waste places, by road-sides, &c., extremely common.

——— *pratensis*. In damp meadows and pastures, by way-sides and in marshy places; probably not rare in the county and Isle of Wight, but it is, I confess, a species I do not well understand, and I dare say have repeatedly overlooked or regarded it as *R. crispus* or *obtusifolius*. First gathered near Newtown, June 30th, 1842, in company with Mr. Borrer, who drew my attention to it. On Ryde Dover, September, 1843; *Id.*!! In the Cyperus meadow at Apes Down,

between Carisbrook and Yarmouth, August, 1844; *Id.* The plant has since been lost sight of by me, and neglected, but renewed inquiry and examination will doubtless detect it on the mainland of the county, and in other places on this island.

Rumex crispus. Common everywhere in similar places with the foregoing species of the genus.

——— *Hydrolapathum.* In wet meadows and pastures, in, and on the banks of rivers, ditches and ponds. In several parts of the Isle of Wight, but very local, from the paucity of congenial situations for its growth. In meadows along the valley of the East Yar, towards Alverstoke, &c., in plenty, and by the same stream at Yarbridge. Marsh at Easton, Freshwater Gate. Very common, if I remember rightly, in the damp valley of the Medina about Rookley, Cridmore, and elsewhere to the south of Newport, but I find no special entry made of these stations for a plant so generally frequent in England as this. Abundant in many parts of mainland Hants, and I believe universally distributed over the county. At Bishopstoke. Water meadows about Winton, at Kingsworthy, &c. Titchfield river; Mr. W. L. Notcutt.

——— *Acetosa.* In meadows and pastures, especially where the soil is rather poor and moist; abundantly.

——— *Acetosella.* Everywhere plentiful in fields, meadows, pastures, waste places, heaths, and on hedge-banks, particularly abundant on dry, light sandy soils.

Polygonum Bistorta. In damp meadows and pastures; rare? Not yet found in the Isle of Wight in a state or in situations that could entitle it with propriety to form an item in the floral census of the county. Naturalized as a weed in the kitchen-garden at Westridge, near Ryde. Wet meadow near the pond at Old Park, Undercliff; abundantly, June, 1838; Mr. Albert Hambrough !!! Nearly

* It must have been remarked that throughout these Notes the rarity of plants is for the most part indicated interrogatively, seldom positively, or without a sign of doubt. As regards the Isle of Wight, I can with confidence give the absolute or relative infrequency of the species composing its flora from many years of observation over its limited surface, but with respect to the far more extensive area of the county at large, of which the Isle of Wight forms hardly more than a fifth part, if even so much, my personal acquaintance with the vegetation of mainland Hants is yet too confined and imperfect to enable me to pronounce any species to be certainly rare because it has seldom presented itself to view during excursions, most of which have been made within these last two years, and embrace a very small field of observation compared with that remaining for scrutiny. The experience of the past two summers has greatly reduced the amount of species which till lately I had supposed quite rare, or at all events very local.

naturalized from the garden of which the pond forms as it were a part. Truly wild in damp meadows on the mainland, although certainly not common. I found it some years ago in great plenty in a moist meadow near North or South Stoneham, a few miles from Southampton, in full flower in August, but the memorandum of the exact locality and date is at this moment mislaid; these documents not then being preserved with the same method and regularity as at present, and entered in a book kept expressly for the purpose, like the Sybilline leaves, I sometimes find not to be consulted when wanted for reference. Formerly by the stream side (Itchen river) above Deangate Mill, Winton (close to the city on the north side, at the entrance to Winal water-meadows); Dr. A. D. White: but not now to be found there, as I have ascertained myself, and the station might perhaps be deemed suspicious from its vicinity to the town. Warnford; Mr. Vickery: and Cheriton; Miss L. Sibley. Near Gill Copse (Fareham); Mr. W. L. Notcutt!! Probably genuine stations, but I cannot answer for their being so. I found, September 17th, 1848, a single specimen in a meadow betwixt Selborne and Oakhanger, but certainly wild and still in flower.

Polygonum amphibium. In ponds, ditches, marshes, and low wet meadows. Frequent in the county, but not so in the Isle of Wight, and very rarely flowering in the latter. Var. α . natans. Floating; leaves broadly oblongo-lanceolate, smooth and shining. Var. β . terrestre. Erect; leaves lanceolate, and as well as the stipules hairy on both sides. The former is certainly rare in this island, at least in the flowering state. In a small pond near the road-side, just out of Kingston, on the way to Shorwell, in plenty and flowering freely. A most conspicuous ornament to the pond on Petersfield Heath. Frequent, I have no doubt, in various parts of the county, though I have no memoranda to that effect. The var. β . occurs in several parts of the Isle of Wight in plenty, but very rarely flowering. Abundantly in a hollow by the road-side on the left hand, a few hundred yards beyond the turnpike going from Yarmouth to Shalfleet. In Sandown marshes, and at Freshwater Gate. Area of Quarr Abbey, &c.

——— *lapathifolium*. On rich cultivated or waste ground, dunghills, &c.; frequent in the Isle of Wight, and as far as my observation has gone, over the rest of the county. Possibly only a permanent form or race of *P. Persicaria*, but possessing characters sufficiently definite and constant to support its claim to specific distinction with considerable plausibility. The very obscure *P. laxum* may occur in the county, but I am by no means desirous of swelling

the Hampshire Flora with dubious, false, or book species, although anxious not to overlook or omit mentioning as *varieties* when they occur both, this and other such quasi species, leaving to future compilers of general or local floras who may be pleased to avail themselves of my labours, to exalt them into specific notoriety if they shall see fit to do so.

Polygonum Persicaria. In low rich moist ground, on ditch-banks, dunghills and waste or cultivated land, very common.

——— *mite.* A solitary specimen of this very apocryphal species was picked by the Rev. G. E. Smith, September, 1838, in a lane between Apley and St. John's, near Ryde !! I have not succeeded in finding it there since, but have reason to believe that it grows intermixed with *P. Persicaria* and *P. minus* in the marshes of Sandown Level.

——— *Hydropiper.* In moist places by road-sides, wet meadows and on ditch and river banks, &c.; abundantly almost everywhere. The grassy sides of our damp shady lanes and bye-roads are usually fringed with this species from August to October.

——— *minus.* In similar places with the last, also in moist gravelly depressed spots on heaths, and bare places on moory, peaty ground. Very rare in the Isle of Wight. In great profusion in the little drains intersecting the meadows on Sandown Level, betwixt the high road from Ryde and Brading to Shanklin, &c., and Lake and Blackpan Commons, extending up the valley of the East Yar, in front of the latter, growing intermixed with *P. Hydropiper*, and I suspect also with *P. mite*. First found there by Miss S. Lovell, in whose herbarium I saw it marked *P. Hydropiper*, and who kindly conducted me to the station, September 23rd, 1847. The Sandown plant is the upright variety of *E. B.* and of the '*Flora Londinensis*.' Apparently frequent on the moorlands of the Hampshire forest districts, where it occurs abundantly, and usually with perfectly depressed or prostrate stems, of a deep red or purple colour, on bare damp spots of black vegetable soil. In this state I find it in several places on Wolmer Forest, as betwixt Blackmore farm and the great pond, and elsewhere in the vicinity of the latter. On Petersfield Heath. Close to Ringwood, and very abundant at Blashford, about a mile north of that town, at both ends of the village, in wet, depressed, pasture ground by the road-side, September 29th, 1849. Abundant on Short Heath, near Selborne; Dr. T. Bell Salter!!! The variety with prostrate stems is the only form I have yet fallen in with on the mainland of the county.

Polygonum aviculare. In some one or other of its multitudinous forms a most abundant weed throughout the county and Isle of Wight, in almost all soils and situations. Var. α . *segetale*; stems erect, sometimes prostrate, more or less (often copiously) branched, very slender, filiform and wiry, flowers remote, leaves small, narrow lanceolate, acute. Abundant in corn stubbles after harvest: the Wire-weed of the Isle of Wight. Probably the *P. virgatum* of Loiseleur Deslongchamps, as suggested by Babington (Man. p. 275). Var. β . Stems short, thickish, prostrate, much branched, spreading mostly in a circular form, flowers and leaves very small, crowded, the latter elliptic lanceolate or oblong. In sandy ground by the sea. Betwixt Ryde and Sea View, October 2nd, 1845. I believe not at all uncommon on our Hampshire shores, and certainly a remarkable variety, but having neglected to make further notes of its occurrence, I will not trust to memory for additional localities. Were it not that I hesitate to give utterance to a word of such sesquipedalian length, I would have headed this last form *herniarioides*, for so strong is the resemblance it bears to *Herniaria glabra* or *ciliata*, and their places of growth so analogous, that I have more than once been cheated into the momentary belief that I had rediscovered the *Herniaria* formerly found, according to Martyn, at Portsmouth. The first variety is not less remarkable, and reminds one strongly of *Bupleurum tenuissimum* in its habit of growth. A much branched, large and prostrate form, with large opaque fruit (*P. littorale*, *Link* ?), occurs here and there on our island sea-shores (see next species below); and lastly we have another state of this most multifarious plant, with remarkably large and broad obovate leaves, which grows by the path-side above the cliffs of Sandown Bay and elsewhere, and comes very near the American *P. erectum*, if not identical with that plant, reduced by Dr. Gray (Man. of the Bot. of the Northern United States) to a variety of *P. aviculare*.

———— *Raii*. On sandy sea-shores; very rare? A doubtful native of the Isle of Wight. On waste ground opposite Plumbley's Hotel, Freshwater Gate, and at Brook, I found what I believed to be this species some years since, but having preserved no specimens from these localities, I am at present unable to confirm it as an inhabitant of the island. I have a fine specimen of a plant labelled *P. Raii*, which I found on the shore betwixt Sea View and the Priory, near Ryde, July 26th, 1837, with a reference to the figure and description of that species in E. B. Supplem. iii. t. 2805, appended, as if carefully compared therewith, and found identical. But on exa-

mining this specimen afresh, I find the nut dull, opaque, brown, and copiously covered with minute points or granulations, and therefore not corresponding to the account given by Mr. Babington of the fruit of *P. Raii*. In all other respects, and in the nut exceeding the perianth in length, it perfectly agrees with *P. Raii*. The root, and base of the much-branched, prostrate stem in my specimen has a woody, perennial look, and reddish brown colour. I suppose it can only be the maritime form of *P. aviculare* (*P. littorale*, *Link ?*), unless it may be that the fruit becomes finally dull and striate by pressure and keeping, as I can hardly believe myself to have overlooked the most material character in determining this species from the commoner *P. aviculare*. Near Muddiford, by Christchurch; Mr. Borrer: from whence the specimen in E. B. was drawn.

Polygonum maritimum. On sandy sea-shores; extremely rare, and there is every reason to believe extinct in the only known Hampshire station. Discovered upwards of a dozen years ago by Mr. Borrer, on the sandy shore between Christchurch or Hengistbury Head and Muddiford, but in a situation that exposed it to speedy destruction from the encroaching waves! I searched for it this autumn when exploring the neighbourhood of Christchurch, and found, as I had expected,—not the plant, but the fulfilment of Mr. Borrer's prediction concerning it. We may, however, reasonably hope for its reappearance on the same or some other part of the Hampshire line of coast. Mr. H. C. Watson, whose caution and moderation in adopting new species entitles his opinion to the greatest weight, and who is much in the habit of subjecting such recent promotions to the *ad crucem* test of protracted cultivation, is perfectly satisfied that *P. Raii* is hereditarily distinct from both *P. aviculare* and *P. maritimum*. It would ill become me to set up a decided opinion against authority like those of the three able botanists best acquainted with these species, backed, as their views are, by the experimental results of Mr. Watson, yet I cannot divest myself of a lurking suspicion that whatever may become of *P. maritimum* as a species, *P. Raii* will hereafter be acknowledged as a variety only of *P. aviculare*. The ochreae are the same in both, the length of the nut, as compared with the perianth, confessedly liable to variation (in my dubious Ryde plant it is quite as long as in the E. B. figure), the nut, it appears, may be both shining and granulated, as well as granulated and without lustre (see E. B. in loc.); the plant either apparently annual or apparently perennial, and lastly, to crown all, “there is a maritime variety of *P. avi-*

culare which *exactly resembles* *P. Raii* in appearance, but its fruit differs totally." (E. B. l. c. and Phytol. ii. p. 617).

Polygonum Convolvulus. In waste and cultivated ground, corn-fields, gardens, and waste places, also in damp hedges and thickets; an abundant and troublesome weed, especially in light sandy soils. Var. β . Outer segments of the perianth distinctly and conspicuously winged. Occasionally in light soils. I have gathered it running up pea sticks in the garden of the Shanklin (late Williams's) Hotel. On the Dover, Ryde; Mr. Wm. Wilson Saunders !!! where I have repeatedly found it. In a garden-hedge on Short Heath, near Selborne, 1848. In a sandy field and in garden ground at Holy Water, on Wolmer Forest, and in fields at Passwell Common, very abundant and luxuriant; apparently quite frequent on the loose sandy soil of the forest, but varying much in degree of development of the wings. Totally distinct from the following species, with which there is a risk of its being confounded by the tyro unless attention be paid to the characters laid down for their discrimination. *P. Convolvulus* is called Lily in Hampshire, a most comprehensive term in the county, including most herbaceous plants with climbing or trailing stems, without regard to the size or shape of the flowers.

————— *dumetorum*. In hedges, thickets, bushy places, and in newly cut copses; very rare? In the dry hedges of a sandy bye-road within a mile of Petersfield, towards Steep, a few hundred yards before coming to a public house called the Harrow, in great plenty, twining about hazel and whitethorn at intervals for a very considerable distance, August 22nd, 1849. I had always calculated on finding this truly elegant plant in the county, as it has been found in so many localities in the south of England since its first detection in this country at Wimbledon, by Mr. J. A. Hankey, about twelve years ago, and because it was observed by Mr. Jenner a few years back, abundantly betwixt Petersfield and Midhurst, beginning a little east of Rogate, and therefore not within our limits. Mr. Borrer could not find it there last year, nor could I discover a trace of it in September on any part of the road between the two towns. It is therefore evidently capricious in its seasons of appearing, if not disposed altogether to desert its former haunts. Yet this inconstancy will not explain the omission of so beautiful and conspicuous a plant from the British flora up to a recent period, because it must have been known to our leading English botanists as a native of the continent, and could hardly have been passed by as the variety of *P. Convolvulus* with winged angles to the perianth just described, from which it dif-

fers too materially in aspect not to excite special attention. I cannot find any allusion to *P. dumetorum* as a British species in the writings of Ray, Gerarde, or other old English botanists, and it is a remarkable fact that Linnæus was ignorant of its existence in Sweden, although it appears from Wahlenberg, Fries and others to be no rare plant in that country, even in the vicinity of Upsal, where Linnæus taught and resided, and was in the habit of making herborizing excursions with his pupils, accompanied by the acute German botanist Ehrhart. Yet Linnæus knew the plant well, and imposed the specific name of *dumetorum* upon it in the second edition at least of the 'Species Plantarum' (for I have not the first by me to consult), only seven years after the publication of the improved edition of his 'Flora Suecica' in 1755, wherein no mention is made of the plant even as a remarkable variety. Wikström (Stockholm's Flora, p. 282) tells us it was first noticed as a Swedish plant in the province of Halland, and published as such by Dr. Osbeck, in his 'Flora Hallandica,' printed in the Swedish Royal Society's Transactions for 1788, some years after the death of Linnæus, and consequently when the species was generally known and distinguished from *P. Convolvulus* and its winged variety. Yet Wikström himself gives many stations for it in his excellent flora of the country one (Swedish) mile round Stockholm. Facts like these are curious, as attesting the slow advances of the human mind in discovery, even when dependent on the simple exercise of the senses, involving no process of inductive reasoning or laborious research. Impulses arise, we scarcely know how, at distant and indeterminate epochs, the spirit of inquiry is aroused and pervades the nations, when discoveries of all kinds, natural, moral, and political, crowd thick and fast upon us. The high latitude attained by *P. dumetorum* on the continent of Europe, even along the western coasts, renders it probable that it will eventually prove indigenous to the greater part of Britain.

The American *P. scandens*, now referred by my friend Dr. Gray to *P. dumetorum* of Europe, of which it is possibly only a form, certainly presents some striking and permanent differences in the much more robust growth of its very long, twining stems, which are usually strongly tinged all over with purple; in the broader, shorter, less acuminate leaves, that approach more to cordate and less to hastate or sagittate than in ours, the lobes being more rounded; in the racemes, which are notably less elongated in the American plant, and are usually interspersed with several small but conspicuous leaves, whereas in *P. dumetorum* the racemes are naked, or very nearly so, the

leaves, when any, minute, and little apparent amongst the flowers. The latter are, in the American *P. scandens*, somewhat superior, perhaps, in size to those of *P. dumetorum*, and the wings of the enlarged perianth project a little more beyond the apex of the seed, and are more rounded at their anterior margins, which gives the appearance of a deep notch or sinus, causing the fructiferous perianth to assume more the form and aspect of the samara of an elm than in the European species. In the size, shape, and smoothness of the finely polished fruit, I perceive no difference betwixt our own and the transatlantic plant. The American *P. scandens* I have always found growing exclusively in wet, or at least very moist thickets, most commonly on willows or other low bushes in swamps or osier beds, whilst our *P. dumetorum* affects dry as well as damp spots, and, as we have just seen, will even flourish in sandy hedgerows.

I suspect *P. dumetorum* and the American form or species *P. scandens* to be occasionally biennial. Wahlenberg says (Fl. Ups. p. 132) "*Radix subbiennis*," and in Fl. Suecica, i. p. 251, 2nd ed., "*Radix circiter biennis et tota planta magis longæva et extensa*." The appearance of these plants favours such an idea, but *P. scandens* from seed I collected at Philadelphia has shown itself an annual hitherto in St. John's garden, near Ryde, where in dry soil it has preserved all its original character through two generations, evincing no disposition to become *P. dumetorum*, which last from Hampshire seeds I shall hope to have under my eye next year, to compare with the American variety, if such it should prove really to be. Mr. Borrer tells me he has a plant labelled *P. scandens* from the Cambridge Botanic Garden which has proved more than annual. It is worthy of remark that although the larger plant of the two, *P. dumetorum* has smaller flowers at first than *P. Convolvulus*, it being only in fructification that they so notably surpass those of the latter in size. The seeds of *P. dumetorum* and *scandens* are smaller in all their stages than in *P. Convolvulus*. Wahlenberg, in his 'Flora of Upsal,' inclined to believe *P. dumetorum* a wood variety of *P. Convolvulus*,* but in his later work, the 'Flora Suecica,' he has tacitly renounced an opinion so manifestly erroneous.

OBS.—*Polygonum Fagopyrum* (Buckwheat) is excluded from the floral census of the county, being only found as an occasional and very fugacious intruder on waste ground, either strayed from cultiva-

* Nihilò tamen minus vix nisi forma nemorosa precedentis (*P. Convolvuli*) est. Fl. Upsal. p. 132.

tion, or springing from seed accidentally dropped. It should be omitted in like manner from all our general and local floras, having no plea to urge in favour of retention beyond unmeaning adherence to custom from blind submission to precedent and authority, or from a desire to increase as much as possible the apparent botanical riches of a district by a parade of borrowed wealth. See Mr. Watson's pithy remarks on this subject in 'Cybele Britannica,' vol. ii. p. 341.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
November, 1849.

(To be continued.)

Some Account of a Botanical Trip in Scotland.

By JAMES BACKHOUSE, JUN., Esq.

IN the early part of 7th month (July) last, our little party, comprising my friend John Tatham, of Settle, my father and self, left the railway at Forfar to spend a few days among the Clova and Glen Isla mountains. During the excursion we visited Glen Phee, Glen Dole, the ravine of the White Water, Glen Callater, Doch Dhu (Dhuloch), Lochnagar, the Glass Mhiel mountains and Canlochen Glen. As all these localities have been previously explored and their botanical rarities described, it will be unnecessary to occupy space in the 'Phytologist' by minute detail. I shall therefore only touch upon those points which may convey fresh information, or manifest some decidedly interesting feature.

On "The Bassies," the mountain due west of the hamlet of Clova, a form of *Hieracium Schmidtii* (Tausch), *H. diaphanum* (Fries and Bab.), with fewer and larger flowers than usual, occurs: the stem-leaf is half-clasping, if not decidedly amplexicaul. Was the *true* *H. amplexicaule* ever really found on the Clova Mountains by G. Don? or was it only some shaggy and strongly amplexicaul form of *H. Schmidtii* like this?

The range of hills comprising "Carlowie," "The Bassies" and "The Scorie," is composed of mica slate, covered on the top with granitic sand or gravel. On the granitic knolls at the top *Azalea procumbens* forms fine tufts. On the summit of Lochnagar, which is entirely granitic, it grows in still greater luxuriance, covering the ground in some places like a carpet studded over with exquisite little pink blossoms.

Woodsia Ilvensis still luxuriates among the cliffs of Glen Phee: a specimen (out of reach) seen by one of our party, appeared to have fronds five inches in length. We saw no trace of *Woodsia alpina* throughout our whole journey, strange to say; as from the records respecting the latter it would seem to be more frequent than the former.

Spergula saginoides (Eng. Bot.), *Sagina saxatilis* (Bab.), was very abundant in some places at the foot of the cliffs in Glen Phee and Canlochen Glen; and being in full flower, was as conspicuous as its minuteness would admit of.

Mulgedium alpinum was not in flower in Glen Dole, the plants appearing to want another fortnight to bring them to perfection.

The cliffs in Glen Dole and Canlochen were beautifully ornamented by *Veronica saxatilis* and *alpina* and *Silene acaulis*, which covered the rocks in many places with bright cushions and drapery of pink and blue. *Saxifraga oppositifolia* was rather past its best. *Silene acaulis*, var. *alba*, was gathered on a high rock in Glen Dole, as also *Vaccinium uliginosum* in fine flower.

In Glen Callater, *Salix lanata* was in fine order; also *Carex aquatilis*, var. *pauciflora*, *Persoonii* and *rariflora*. *Carex vaginata* was scattered upon the serpentine rocks, and below Loch Calder *C. rupestris* in many places seemed to form almost the entire herbage: many of the specimens were very fine and well developed. It grows exclusively on the serpentine rock, and occupies a zone about half way up the crag. One specimen of *C. vaginata*, far more robust than common, exhibited the curious refracted form mentioned in some botanical works; the stalk of the barren spikelet bending back at an acute angle from the uppermost bract. In this state the main stem is thick to its union with the barren spikelet, while the stalks of the fertile spikes are diminished almost to a capillary structure. *Saxifraga rivularis* was in the greatest abundance on the dripping rocks under the cliffs of Lochnagar, and among rocks on the west side of the mountain we were fortunate in discovering the apparently undisturbed habitation of *Carex leporina*. Its dense tufts were spread around us on all sides; in some places a dozen specimens or more might have been gathered at a time. After the momentary delight at the "find" had in some degree passed over, I could not help feeling regret at the irresistible annihilation of the idea of extreme rarity hitherto almost mystically connected with this humble sedge! I could not retain the delusion any longer, and was obliged to give in to the conviction that the unlikely-looking places of its choice were the main

securities of its comparatively undisturbed possession and character for rarity. Next to these two treasures the most interesting object we saw on Lochnagar was a fine eagle, which sailed out of the cliff within a stone's throw of us.

In descending the Glass Mhiel to the head of Canlochen Glen we fell in with *Cerastium latifolium*; a very distinct plant from *C. alpinum*, with which it was growing. Indeed, the chief similarity seems to be in their both forming dense, matted tufts, and usually bearing solitary flowers. The corolla of our *C. latifolium* is but little longer than the calyx; the uppermost bracts are entirely destitute of any membranous margin, and the pubescence, instead of being soft, silky and shaggy, is bristly, rather rigid and short.

Poa montana, *Balfourii* and *nemoralis* were gathered in Canlochen Glen (?). *Gentiana nivalis*, *Erigeron alpinus*, &c., &c., were abundant as usual. A root of the former, placed under a tumbler at Braemar, expanded its deep cærulean blossom beautifully in the sunshine.

Saxifraga nivalis studded the face of one of the great crags in every direction, but the dark, hard rock seemed to be destitute of all other objects of interest.

A solitary specimen of a *Juncus*, resembling *biglumis*, was gathered on the Glass Mhiel; whether the true *biglumis* or a very reduced *castaneus*, we could not decide. Its size was that of a fine *biglumis*, but the character was that of *castaneus* with two glumes and a projecting tall bract. Forms of *biglumis* and of *triglumis* certainly approximate in a very confusing and rather unpleasant manner. Can these be hybrids between *castaneus* and *triglumis*? An affirmative proof would be rather consolatory.

In looking over my specimens gathered on the Glass Mhiel in 1848, I was struck with the dissimilarity between a plant which we then took for a large form of *Sagina saxatilis* and the usual state of it as shown by our specimens gathered this year in Glen Phee, &c. On referring to the 'Guide to Forfarshire,' I found that G. Don discovered a plant which he called *Spergula maxima*, which is supposed to have been a variety of *S. saxatilis* (*Spergula saginoides*), and probably the *S. macrocarpa* of Reichenbach. Not having the works of that author to refer to, I sent it to C. C. Babington, who has always most kindly assisted me in the determination of species, when my own sources of information have failed. He tells me that he thinks it will prove the *Sagina nivalis* of Fries, a species hitherto unknown to Britain. That it is no variety of *S. saxatilis* seems certain: it differs in the plant being destitute of the central tuft of leaves, in having

thick, erect peduncles, a capsule five-cleft, fully twice as long as the calyx, and a compact habit of growth. Though in *saxatilis* the plant is densely matted, yet few or none of the very slender peduncles are erect. *S. saxatilis*, moreover, covers the ground in dry, exposed places with a little carpet, while *S. nivalis* forms *small* solitary tufts in the courses of the mountain streams, judging by the position in which our specimen was found. Should any botanist visit that part of Scotland next season, a little time devoted to a search for this apparent novelty might not be unrewarded.

JAMES BACKHOUSE, JUN.

York, December 13, 1849.

Notes on the more interesting Flowering Plants gathered in North Wales, in September, 1849. By ALFRED W. BENNETT, Esq.

ALTHOUGH it was late in the season when we started on our trip into Wales, and our attention was more particularly directed to the ferns, we met with many interesting flowering plants, some of them new to us, who have had but few opportunities of botanizing in mountain districts, of which I send a few notes, if thought worthy of record.

About half way between Builth and Rhayader the beautiful little *Wahlenbergia hederacea* was first observed in patches by the road-side, and afterwards, where the road opens out on to a common, we found it creeping among the grass and low herbage in the greatest profusion. *Hypericum elodes* is also abundant. *Epipactis latifolia* almost lines the road-side in several places. In the ditches before coming to Llangurig we first noticed a white-flowered *Ranunculus*, but nearly past flower, without capillary leaves, which struck us at once as somewhat different in habit and appearance from *R. aquatilis*, and it proves on examination to be the newly separated *R. Lenormandi*. It was afterwards found more abundantly in several localities in the sub-alpine districts all round Plinlimmon. The meadows and banks in the same district were profusely ornamented with *Viola lutea*, of every variety of colour, from entirely yellow to dark purple.

On hedge-banks and in damp places near Machynlleth, the *Wahlenbergia* was again extremely abundant; and *Cotyledon umbilicus* was almost everywhere on the walls. On the highest part of the road between Machynlleth and Dolgelly we had much pleasure in observing *Spiræa salicifolia* in a hedge, exceedingly fine and handsome;

whether truly indigenous or not we had no means of deciding; though the locality is anything but one in which it is likely to have been planted. About Barmouth, *Geranium sanguineum* almost covers the banks and rocks in some places, and *Rubia peregrina* was scrambling among the bushes a little out of Barmouth, on the road towards Harlech; both, of course, out of flower at this time of the year. The sands beyond Harlech produced *Aster Tripolium*, *Plantago maritima*, and other common sea-side plants.

At Penmorfa, near Tremadoc, *Viola palustris* was observed by the road-side, but past flower. On the embankments forming the harbour of Pwllheli, Caernarvonshire, we gathered *Eryngium maritimum*, *Euphorbia Paralias*, *Cakile maritima*, *Alsine marina*, *peplodes* and *rubra*, *Polygonum Raii*, *Salsola Kali*, and *Rosa spinosissima*. *Lepidium Smithii*, readily distinguished from its congener, *L. campestre*, by its exserted style when in fruit, is extremely abundant on the promontory extending westward of Pwllheli, and terminating at Aberdaron; and in general throughout Caernarvonshire and Merionethshire. In pastures near Aberdaron, *Gentiana campestris* and *Trifolium medium* occur sparingly; *Artemisia Absinthium* is abundant; *Alsine rubra* was again noticed in sandy places about the village, and *A. marina* on the rocks. Extending into the burial-ground of the ancient church, *Glaucium luteum* was conspicuous.

The Great Ormes Head is one of the most interesting localities in North Wales, both on account of its bold scenery, and its interesting flora, being almost the only limestone district indicated by the brilliant blue flowers of *Cichorium Intybus*, and the yellow and pink heads of *Anthyllis vulneraria* greeting the eye. By the side of the road near the village of Llandudno, which is rapidly rising into importance as a watering place, on account of the magnificent scenery in its immediate vicinity, *Senecio viscosus* grows in considerable abundance, along with *S. sylvaticus*, from which its longer rays and remarkably neat and pretty appearance clearly distinguish it at first sight. High up on the cliffs the large shining leaves of *Brassica oleracea* attracted our attention, growing out of the clefts, and *Thalictrum minus* among the loose *débris*. In the deep fissures and hollows of the otherwise bare, immense masses of rock heaped together at the base of the western cliffs, we collected *Crithmum maritimum*, *Statice spathulata*, and *Sedum rupestre*; and on the shingly beach more to the south, some very stunted and half-starved specimens of *Samolus Valerandi*. Above the cliffs were noticed *Spiræa Filipendula* and *Spiranthes autumnalis*; and the beautiful flowers of *Geranium sanguineum* still to be seen

here and there in the more sheltered parts. We much regretted that we had not time at command more thoroughly to investigate this most interesting locality.

A single plant of *Erodium moschatum* was observed on the town walls of Conway. *Trifolium medium* is tolerably plentiful near Pont-y-Clydd, half-way between Conway and Llanrwst. Near Llanrwst, on the wall which we have no doubt is the same indicated in Newman's 'British Ferns,' as having afforded *Asplenium septentrionale* in such great abundance, the neat and pretty *Thlaspi alpestre* grows plentifully.

In Llyn Idwell, which occupies the bottom of the well-known Cwm Idwell, we had the pleasure of gathering *Lobelia Dortmanna* for the first time, the few remaining blossoms standing out of the water somewhat difficult to reach. Among the fallen rocks up which it is necessary to clamber in order to reach Twll Du, thrive *Saxifraga hypnoides*, *Oxyria reniformis*, and *Silene acaulis*. *Sedum anglicum* and *Saxifraga stellaris* are abundant throughout the whole of the Snowdon district. In the chasm itself grows *Meconopsis cambrica*, and it is alone sufficient to repay all the toil and exertion of the scramble to see and to gather this fine plant in a situation so truly wild. We did not attempt to gain the Llyodia, being far too late in the season to see it in flower. In the descent towards Llanberis, a very steep part of the mountain-side is almost covered with *Carduus heterophyllus*; and the course of a romantic streamlet coming down in the form of a continued cascade out of Glyder Vawr, is decorated with the beautiful snow-white blossoms of *Parnassia palustris*. Under Clogwyn-dur-Arddu, one of the shoulders of Snowdon, we gathered *Arabis petræa*, *Cochlearia officinalis*, var. *alpina*, *Empetrum nigrum* in fruit, and a few specimens of *Silene acaulis* still remaining in flower; on Clogwyn-y-Garnedd, *Thalictrum minus* and one single plant of *Saxifraga nivalis*.

Myrica Gale perfumes the morning air on the boggy ground between Pont-aber-Glaslyn and Tan-y-bwlch, where *Scutellaria minor* is also abundant. By the road-side, in an old quarry a little before the station for *Asplenium lanceolatum*, we noticed a remarkably fine and striking variety of *Convolvulus sepium*, with handsome pink flowers.

From Festiniog to Bala is a monotonous dreary road, winding among bare, brown, moory mountains, very thinly inhabited, and anything but generally interesting to the botanist. At one spot *Spiræa salicifolia* appears to have spread itself as if naturally, and exceedingly fine by the side of some small rivulets tributaries to the Dee. We again noticed it where it is recorded to have been planted between

Bala and Corwen, lower down by the side of that river ; but there seems no reason to suppose that it has thus been extended *upwards* to the spot indicated above. *Artemisia Absinthium* was again exceedingly fine and abundant close to the bridge of the little village of Llandrillo, half-way between Bala and Corwen. From here through Llangollen the road conducts out of Wales.

The more commonly occurring plants have not been noticed above. The time occupied in this excursion was just fourteen days, accomplishing on the average nearly thirty miles per day on foot ; which, with the days drawing in rapidly at this advanced period of the year, left but little time to explore any particular locality, or our list might probably have been much richer.

ALFRED W. BENNETT.

London, December, 1849.

BOTANICAL SOCIETY OF LONDON.

Thursday, November 29, 1849.—Thirteenth Anniversary Meeting.

J. E. Gray, Esq., F.R.S., &c., President, in the chair.

W. Bean, Esq., of Liverpool, was elected a corresponding member.

The following donations were announced :—British plants from Mr. Hewett C. Watson, the Rev. Professor Henslow, Mr. A. Henfrey, Dr. Bidwell, Mr. T. Bentall, Mr. E. G. Varenne, Mr. J. Storey, the Rev. H. P. Marsham, Mrs. Russell, Mr. D. Oliver, Mr. J. Whitaker, Mr. T. Clark, Jun., Mr. W. H. Purchas, Mr. J. L. Lawrence, Mr. T. Sansom, Mr. W. Bean, Mr. Brent, Mr. J. Reynolds, Mr. G. Cooper, Mr. J. Hussey, the Rev. T. Butler, Mr. G. Rich, Mr. G. E. Dennes, Mr. G. Maw, and Mr. R. Hudson.

The Secretary read the Report of the Council, from which it appeared that fifteen new members had been elected since the last annual meeting, and that the Society now consisted of two hundred and forty-nine members. The distribution of the British duplicates had given the greatest satisfaction to the members, and increased exertions had been made this year to obtain the rarer and interesting specimens, which had been attended with much success. The donations to the library had been considerable.

The Report was unanimously adopted, after which a ballot took place for the Council, when the President was re-elected, and he nominated J. Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S.,

Vice-Presidents. Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. T. Moore were respectively re-elected Treasurer, Secretary, and Librarian. Mr. J. Coppin, M.A., Mr. G. Luxford, and Mr. J. L. Lawrence were elected new members of the Council, in the room of Mr. A. H. Hassell, Dr. Cooke, and Dr. Ayres.—*G. E. D.*

N.B.—In consequence of the death of Mr. E. Doubleday, one of the Vice-Presidents, no meeting was held in December.

Note on Serratula tinctoria, Alsine stricta, and a Species of Woodsia.

By DANIEL OLIVER, JUN., Esq.

Serratula tinctoria. Botanizing in Teesdale a while ago, I fell in with an example of what appears to be the broad-leaved saw-wort, or *Serratula tinctoria*, var. *integrifolia*. I have not observed any mention of this variety in Hooker or Babington's Manual: it occurs in Smith's 'English Flora' and 'English Botany.' The figure in Petiver's works is, so far as the leaves are concerned, like the plant in question, but the form of inflorescence is different. It may be common, but never before turned up, to my knowledge, to botanical friends here or myself.

Alsine stricta. Examples of this rare plant which I possess, from Teesdale, appear to have glabrous peduncles; if such be a character, it might be introduced with advantage into the specific description,—more especially as the presence or absence of nerves in the leaves is not so easily determined in the dried plant. Very frequently little reliance is to be placed on pubescence or hairiness; but, so far as I have recently examined, the peduncles of *Alsine verna* are always more or less hairy or pubescent.

Woodsia. I collected, a few months ago, some miles northerly from Moffat, Scotland, the variety? *gracilis*, I think, of *W. Ilvensis*, and agreeing pretty well with the figure in 'English Botany,' No. 2323. If I mistake not, *W. Ilvensis* was mentioned as occurring in that neighbourhood some time ago in the 'Phytologist.'

D. OLIVER, JUN.

January, 1850.

Contents of the 'Botanical Gazette' for 1849; a Monthly Journal of Botany, Edited by ARTHUR HENFREY, F.L.S., &c.

PERIODICAL publication appears to become each year a more popular form of literature, both with readers and writers on science; and Botany has not been left out of this prevailing tendency of the times. 'The Phytologist' led the way as a monthly botanical journal and miscellany, published at a price which placed it within easy reach of almost all persons who could be supposed likely to feel sufficient interest in a scientific study, to induce them to take and read a monthly periodical specially devoted to the one subject. For seven years 'The Phytologist' was alone in this career; the contemporaneous botanical journals keeping to the old-established price of a half-crown for the monthly Number. Last year, however, saw the commencement of two other monthly journals of Botany, published at equal price with 'The Phytologist.' One of these, namely, 'Hooker's Journal of Botany,' was simply the continuation of an older periodical, in a smaller form, and at a lower price, but otherwise very little changed in its real character and objects. To this one some slight allusion has been formerly made in 'The Phytologist' (Phytol. iii. 452); and we may probably mention it more particularly next month. Its objects appear to be quite different from those sought by 'The Phytologist;' and it is addressed to a different class of readers.

The other is altogether a new "venture" in the periodical literature of botany; and one that sails much nearer to the track of 'The Phytologist,' without coming clearly within it. The 'Botanical Gazette' has been ably edited during 1849; although, we may venture to say, its so-intituled "Original Communications" appear to us rather too frequently to be translations of papers published in foreign journals. We by no means object to see such articles in an English form; and if it better suits the editor's convenience to include them among the really "original" communications, we suppose that he will continue to do so. The peculiarity is alluded to just now, in explanation of our remark above, to the effect that the 'Botanical Gazette' does not sail quite in the same course with 'The Phytologist.' While this periodical has always been preeminently, though not quite exclusively, a journal of British botany, the 'Botanical Gazette' becomes more a journal or repertory of European and physiological botany, through its translations, and in its miscellaneous news about foreign botanists. Uncertain whether it would be continued through a

second year, we have hitherto abstained from noticing the contents of the 'Gazette;' but the editor informed his readers in the twelfth Number, published in December last, that "the First Number of the Second Volume will appear in due course on the 1st of January, 1850;" and accordingly a thirteenth Number did then appear. While there is still no positive promise or pledge to such effect, we construe this commencement of a second volume into an intimation that the 'Botanical Gazette' will probably be carried on through another year. Its editor has paid 'The Phytologist' the compliment of regularly inserting a list of monthly contents; and as we desire to reciprocate the same plan, it appears advisable to do so *ab initio*, by giving at once the list of contents of the 'Gazette' for 1849, before commencing the monthly lists for 1850.

First Number.

Introductory Address. [Two explanatory pages by the Editor.]

On some recently-discovered British Plants. By Charles C. Babington, M.A., &c. [The recently-discovered plants are most of them rather dissevered than discovered. *Allium triquetrum* (Linn.) has been found in Guernsey, by the Rev. T. Salwey. *Thlaspi alpestre* (British authors) is sub-divided into *T. alpestre* (Linn.) and *T. virens* (Jord.) This latter name is applied by Mr. Babington to the plant so plentiful on hilly ground near Matlock Bath; but which is thought by Mr. Borrer not to be the *T. virens* of Jordan. Another "form," *T. occitanum* (Jord.), is reported as a variety of *T. alpestre*; while *T. alpestre* and *T. Gaudinianum* (of the same "splitting Frenchman") are quoted as synonyms of *T. alpestre*. *Medicago falcata* is bisected into two varieties, "vera" and "sylvestris," both occurring near Thetford, Suffolk. *Arenaria viscosa* (Fries) is reported from Redneck Heath, near Thetford, and considered to be only a hairy or glandular variety of *A. tenuifolia*. *Knautia arvensis*, variety *integrifolia*, which we had supposed familiar to English botanists, is recorded as "noticed for the first time" at Cherry Hinton, near Cambridge, in 1848.]

On three species of Ferns hitherto involved in much confusion: *Aspidium lobatum*, Sm., *A. aculeatum*, Sm., and *A. Braunii*, Spenn. By Prof. G. Kunze of Leipsic. [Translation from the 'Flora' of June 14, 1848. Continued in No. 2 of Bot. Gaz.]

On the Stolons of *Epilobium palustre*, and of some other species of the same genus. By Thilo Irmisch. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea. [Among the last is a record of *Trifolium strictum* having been found in Anglesea, by Mr. T. Dickenson; but the discovery seems somewhat vague or uncertain, by the record.]

Number 2.

On *Valeriana officinalis*, *L.*, *V. sambucifolia*, *Mik.*, and some other doubtful species. [Notices about the plants from foreign authors.]

Note upon the Effects of Cultivation on *Plantago lanceolata*, *γ.* *sphærostachya* (*W. & G.*) of *Bab. Manual.* By George Lawson, *F.B.S.E.* [Mr. Lawson removed a root from the sands of Barrie into a garden, where it became ordinary *P. lanceolata*, as might have been expected.]

Discovery of *Bromus tectorum* in Britain. [A paper by Mr. C. C. Babington, to record the discovery of *B. tectorum* "for the first time as a native of Britain," near the New Mill, Hertford; where *Setaria glauca* and various other foreign species have likewise occurred, doubtless equally introduced with seeds of flax or other foreign produce.]

Literature. Proceedings of Societies. Miscellanea.

Number 3.

Additions to the Flora of South Wales. By Hewett C. Watson. [A list of species not on record as occurring in South Wales, when the first volume of the 'Cybele Britannica' was printed, but subsequently reported from thence by Mr. James Motley, Mr. C. C. Babington, or other botanists.]

On the Causes that determine the Fall of Leaves. By Dr. Inman. [From the 'Proceedings of the Literary and Philosophical Society of Liverpool.']

On the *Fumaria agraria*, *Lag.* By Charles C. Babington, *M.A.* [A form long known in England, and usually labelled "*F. capreolata*" by English botanists.]

On the Varieties of *Lythrum Salicaria*, *L.* By Prof. Schlechtendal. *Ditto*; by Ph. Wirtgen of Coblenz. [Translations from the 'Botanische Zeitung.']

On a curious Fact in the Physiology of Roots: their penetration into Mercury. By M. Durand. [Translation from the 'Annales des Sciences. Continued into the succeeding Number of *Bot. Gaz.*]

Literature. Proceedings of Societies. Miscellanea.

Number 4.

On *Sagina ciliata*, *Fr.*, and *S. apetala*, *L.* By F. Beneken. [Translation from the 'Botanische Zeitung.' The purport of the paper is to establish the identity of these two alleged species.]

Abnormal Morphology. By Hewett C. Watson, Esq.

On a Transformation of the perichætal part of the Mosses. By C. Muller. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea.

Number 5.

On the Causes which limit the Distribution of Plants in the North of Europe and analogous Regions. By Alph. De Candolle. [Abstract of a paper published in the 'Annales des Sciences Naturelles.' The author recognizes *heat* as the grand cause, but considers that the true mode of reading its effects is, by reckoning up the sum of heat required during the period of growth for the species; the length of time, and the height of the thermometer, being in an inverse ratio; more heat for a shorter time, being equivalent to less heat for a longer time. We fear that there is a fallacy of reasoning here, although the view is founded in truth.]

On the *Rubus nitidus* of Authors, and some other Species. By Charles C. Babington, M.A.

Contributions to the History of certain Cultivated Plants. By Dr. Fraas. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea.

Number 6.

On the Transformations of the Flora of Central Europe during the Tertiary Period. By M. V. Raulin. [Translation from the 'Annales des Sciences.']

Vegetation of the Upper Regions of the Nile. From M. Fred. Werne's Account of Mehemet Ali's Expedition to the White Nile.

Literature. Proceedings of Societies. Miscellanea.

Number 7.

Observations on *Viscum album*.

On the Periods of Vegetation of Winter Rye and Wheat, from the Flowering to the ripening of the Seed. By G. Lucas. [Translation from the 'Botanische Zeitung.']

On *Sagina ciliata*. By Charles C. Babington, M.A. [Mr. Babington distinguishes *S. ciliata* by its sepals being adpressed to the capsule in the mature plant, and *S. apetala* by its sepals ultimately spreading in the form of a cross. Other differences are mentioned in the characters printed, but these are rather verbal than real.]

On Twice-flowering Trees, and the influence of last Winter. By Prof. Schlechtendal. [Translation from the 'Botanische Zeitung.']

On the Causes which interfere with the Development of Flowers, Fruits and Seeds. C. F. Gärtner. [From C. F. Gärtner's 'Beiträge zur Kenntniss der Befruchtung,' 1844.]

Literature. Proceedings of Societies. Miscellanea. [The most important article of the 'Miscellanea,' is a plan or proposal for the "Registration of Localities,"—one likely to become very useful, if supported and well carried out.]

Number 8.

On *Viola sylvatica* and *canina*. By Fenton J. A. Hort, Esq. [Rather behind the 'Phytologist,' in its subject and matter; and asserting some errors.]

List of the Silesian indigenous Willows; with some appendices on Synonymy, &c. By the Director Wimmer, of Breslau, &c. [Translation from the 'Flora.' Continued into succeeding numbers of Bot. Gaz.]

Literature. Proceedings of Societies. Miscellanea.

Number 9.

Note on *Fumaria Vaillantii*. By C. C. Babington, M.A. [The author of the Note deems it probable that we possess only one species in Britain, under the two names of *Vaillantii* and *parviflora*. A similar opinion was expressed in the 'Cybele Britannica,' in 1847.]

Descriptions of new and more accurately discriminated species of *Odontites*, growing in Britain. By John Ball, Esq., M.R.I.A. [Extracted from the 'Annals of Natural History.' The novelty appears to lie in dividing the *Euphrasia Odontites* into two species, "*verna*" (Reich.) and "*rotundata*" (Ball), and then subdividing the former into two forms or varieties, "*rubra*" (Pers.) and "*elegans*" (Ball).]

On the Reproduction of Plants. By Prof. Schleiden. [Translation extracted from the 'Principles of Scientific Botany.']

Literature. Proceedings of Societies. Miscellanea.

Number 10.

On *Viola sylvatica* and *canina*. By W. H. Purchas, Esq. [A series of figures of the capsules, with judicious remarks on the two species and their nomenclature.]

On *Fumaria parviflora*, *Lam.*, and *Vaillantii*, *Lois*. By Arthur Henfrey, F.L.S. [Mr. Henfrey considers that the plants of Kent and Essex, found by himself and by Mr. G. S. Gibson, belong to *F. parviflora*, and states that he has not seen British specimens of *F. Vaillantii*.]

Observations on certain French and German Plants. By Dr. F. Schultz. [Translation from the 'Flora,' of April 12, 1849.]

Special Morphology. By Prof. Schleiden. [Extract.]

On a remarkable Monstrosity of the *Vinca*. By Professor Edward Forbes.

Literature. Proceedings of Societies. Miscellanea.

Number 11.

Observations on the genus *Ulex*, with the Description of a New Species common to Brittany and the South-east of England. By J. E. Planchon, Dr. es Sciences. [Translation from the 'Annales des Sciences Naturelles.' The alleged new species was known several years ago among English botanists, and mentioned in Babington's Manual as a variety, "major," of *Ulex nanus*. Dr. Planchon gives to it the name of *U. Gallii*.]

On the Dorsetshire *Ulices*. By Prof. E. Forbes. [Mr. Forbes says of Dr. Planchon's disovered species, *nanus* and *Gallii*, that "the distinctive characters he assigns to them will not do in the field, however well they may contrast on paper."]

Note on Dr. Planchon's paper on *Ulex Gallii*. By Charles C. Babington, M.A.

On the British forms of *Daucus Carota*. By Prof. Edward Forbes, F.R.S. [Prof. Forbes thinks "that we had better give up attempting to divide our British carrots into more species than one."]

On the *Rumex palustris* of Smith. By C. C. Babington, M.A.

Literature. Proceedings of Societies. Miscellanea. [The 'Miscellanea' include "Records of Localities," and other minor points of information. The records doubtless are understood by the editor to rest upon the personal testimony of the individual contributor. Some few of them are errors of name, or unnecessary repetitions of facts old in print; and this class will soon increase, if not guarded against. It

is much to be wished that both these objectionable features in the reports of localities could be prevented or checked. There seems only one course likely to effect this desirable object; namely, submitting the reports of habitats to the eyes and opinion of some competent boatman, *before* printing them.]

Number 12.

Note on *Viola sylvatica* and *canina*. By the Rev. W. A. Leighton, B.A., &c. [A short paper, with two figures, to show a difference in the form of the stigmas of the two species mentioned. These differences, however, are too slight to be made available in a verbal character: they would probably puzzle, rather than assist, any botanist who was not already familiar with the plants, and therefore familiar with more obvious and broader differences.]

Dr. Dickie's *Cystopteris*. By Thomas Moore.

Notes on some British forms of the genus *Thalictrum*. By John Ball, M.R.I.A.

On *Equisetum arvense*, var. *serotinum*, Meyer. By J. W. Sturm. [Translation from the 'Flora' of July, 7, 1848.]

Literature. Proceedings of Societies. Miscellanea. [Among the "Records of Localities" is one for *Orchis hircina*; namely, "In the parish of Great Glemham, near Saxmundham, Suffolk. E. N. Bloomfield, July, 1847." It would be very desirable to have some corroboration of this alleged locality for so rare and so conspicuous a plant.

Number 13.

Notice on *Potamogeton fluitans*, Roth, and *Ulex Gallii*, Planch. By F. J. A. Hort, Esq.

On the genus *Bromus*, Sect. *Serrafalcus*, Parlatores. By Dr. F. Schultz. [Translation from the 'Flora' of April 21, 1849.]

On extensive Fissures observed in the Stems of two living and healthy Trees of the Spruce Fir. By Ralph Carr, Esq. [From the 'Transactions of the Tyneside Naturalists' Field Club.']

Remarks resulting from a perusal of Mr. Watson's 'Cybele Britannica,' vol. ii. By C. C. Babington. [Notes in explanation or correction of points in the 'Cybele,' chiefly where the name of Mr. Babington is mentioned as the authority for statements, &c.]

Literature. Proceedings of Societies. Miscellanea. [Among the latter is an extract from the 'Botanische Zeitung,' "On the plan to be pursued in teaching Botany in schools," that is highly deserving

the attention of Professors in Colleges, equally with Masters in Schools. "Terminology, which is superabundant, containing much that is useless, must be used with discrimination." And, "We should not teach this or that natural system, since all are more or less incomplete [rather, more or less arbitrary and unnatural], and the student will already have become aware of the existence of natural families from the course of instruction." Our self-deluded system-coiners, who mistake words for things, terms for knowledge, will very little relish such advice.]

C.

Extracts from the 'Proceedings of the Linnean Society of London.'

On the Injuries sustained by certain Plants from the attacks of parasitic Fungi, with particular reference to the Cause of the Potato Disease, by F. J. GRAHAM, F.L.S.

In order to demonstrate the subject more clearly, Mr. Graham exhibited drawings, with magnified figures of several species of parasites; and a great many specimens of different plants, both native and exotic, presenting an healthy appearance on those parts which were still free from the attacks of the different species of mildew to which they were subject, but at the same time showing the most indisputable signs of disease on those parts which were infested by tufts of mildew. The manner in which one plant in particular, Shepherd's Purse (*Thlaspi Bursa Pastoris*, L.), was effected, was very remarkable. Portions of the stems of this were covered, to the extent of two or three inches, with *Botrytis parasitica*, which caused them to become gouty or swollen to three times their natural size; and eventually these parts assumed a brown colour, and a moist putrescent character, which could be traced down the stalks, and in many cases killed the plants. Transverse sections of these blotches, compared with similar sections of a blotch on the potato stalk, exhibited the same effects, the dark fluid having penetrated the tissues of both to a considerable extent. Of all the species of parasitic mildews which he has noticed, Mr. Graham considers those belonging to the genus *Botrytis* to produce the severest injuries; and it is an undisputed fact that the potato crops have been universally attacked, during the last three seasons, by *Botrytis infestans*.

As to the manner in which these parasites acquire their destructive power, Mr. Graham considers that it arises from the natural decay of their *mycelium* or internal filaments, which he has found traversing the tissues of plants, beneath the external tufts of mildew. That the tissues of plants are extensively permeated by this *mycelium*, has been frequently shown by the Rev. M. J. Berkeley and other mycologists ; but the important fact that these roots (as they may be termed) *die* within the tissues of plants, along with their superstructure, assuming a dark colour in decay and ultimately dissolving into a viscous mass, has hitherto, Mr. Graham states, escaped the notice of authors. Decaying matter being thus secretly introduced, corrupts the adjacent tissues, and in many cases spreads over the entire plant and kills it. Mr. Graham states that he has arrived at this conclusion after repeated examinations under powerful microscopes, but that the effects are visible in some cases to the naked eye. Experiments made by enclosing tufts of mildew in the sap of those plants on which it grew, also exhibited the results above stated.

Double-flowered Variety of Matricaria Chamomilla, by J. HOGG,
F.R.S., F.L.S.

Mr. Hogg exhibited dried specimens of a plant which he regarded as a double variety of *Matricaria Chamomilla*, *L.*, found by himself on the sandy road-side near Whitburn, Durham, together with a coloured drawing of the natural size. He stated, in a communication accompanying the exhibition, that he had never before observed any similar variety of the species above named, nor could he find any account of its having been known to vary with a double flower. Sir J. E. Smith, however, in his 'English Flora,' states of *Anthemis nobilis*, that "varieties with double flowers are common in gardens;" and in Smith's own herbarium, in the Museum of the Society, are two specimens of *Pyrethrum inodorum*, var. *flore pleno*, the flowers of which very strongly resemble those exhibited. These were found in Norfolk, by Mr. Crowe, in 1799, and are mentioned in the 'English Flora' as "a double variety, having a multiplied radius and an obliterated contracted disk." In the present example Mr. Hogg states that "the external white petals, or rather the florets of the radius, are altogether larger and stronger; they are much elongated, strap-shaped, less narrow, with their margins somewhat folded inwards, and are rather more numerous than those in the ordinary single flower, from which they

also differ by being sometimes bilabiate; whilst the disk itself is greatly contracted and reduced, and its tubular florets appear to have become very small and abortive; thus apparently indicating that the florets of the radius have become lengthened and enlarged at the expense of those of the disk." Mr. Hogg adds, that in general appearance these large double flowers of *Matricaria Chamomilla* resemble the common white double flowers of the genus *Chrysanthemum*.

Observations on certain Species of the Natural Order Cycadeæ, by
JAMES YATES, Esq., F.R.S., F.L.S., &c.

Cycas revoluta. Since the year 1799, when a female plant of this species flowered at Farnham, as described by Sir James Edward Smith in the 6th volume of the Linnean Transactions, a considerable number of the same sex have flowered in this country. Five individuals might be mentioned, which are now in a flowering state. On the other hand, only one male plant is known to have flowered in our island. This was formerly at York, and is now in the Botanic Garden at Sheffield. Its cone, or rather spike, nearly a metre in length, is preserved in the museum of the Yorkshire Philosophical Society, and exhibits in a very striking manner the affinity of this genus to the rest of the Cycadeæ, whilst the female cone of *Cycas* differs greatly from that of all the other genera.

Macrozamia spiralis. The genus *Macrozamia*, the scales of whose cone, whether male or female, are distinguished by terminating in a single spine, directed upwards, appears to be very closely allied to the *Dioon* of Professor Lindley. It is difficult to distinguish the young seedlings of these two genera. The only perceptible difference is, that in *Macrozamia* the leaflets are contracted at the base, and are more remote from one another than in *Dioon*. Also in both of these genera the leaves of the young plants differ most remarkably from those of the same plants in the adult state. *Macrozamia*, as well as *Dioon*, approaches *Cycas* in the circumstance that the leaflets are decurrent, whereas in the remaining genera, *Encephalartus*, *Zamia* and *Ceratozamia*, they are not at all decurrent, but are contracted at the base, and join the midrib of the leaf by a distinct articulation. The decurrent leaflets of *Macrozamia spiralis* are especially apparent in the young plants.

Encephalartus brachyphyllus. A male plant flowered last year at Chatsworth. The cone appeared early in May, and was full-grown in two months.

Encephalartus Altensteinii. There are at Chatsworth two splendid specimens of this species, which are labelled as such. Some of their leaves are two metres long. One of the two specimens has thrown out bulbs, producing offsets of considerable size. On comparing the leaves of the offsets with those of the parent plant, the former are observed to be much more spinous and smaller than the latter, the number of the leaflets also being much less. This individual therefore affords a decisive proof that such diversities in the leaves may depend upon the age of the plant, or upon other circumstances. Hence it may be inferred, that many individuals, which in our conservatories are distinguished by other names, and especially many of those called "*Zamia pungens*," or "*Encephalartus pungens*," belong to the *Encephalartus Altensteinii* of Lehmann and Miquel. Lehmann assigned this name and made his description of the species from the study of specimens directly imported from South Africa. But if the view here taken be correct, the species was already common in Europe under other names. A plant called "*Zamia pungens*," in the Botanic Garden at Birmingham, agrees exactly in appearance with Lehmann's plate of *E. Altensteinii*, in his '*Pugillus Sextus*' (Hamburg, 1834). The history of two of these plants called "*Zamia pungens*" is remarkable. They are a male and a female, of about equal size and similar appearance, and formerly belonged to Lord Tankerville's collection at Walton-on-Thames. When they were sold, the male plant went to Kew, the female to Chatsworth. Both have flowered, and the flower of each has been represented. An engraving of the female with its cone, produced in 1832, was published by A. B. Lambert, Esq. (see Buckland's '*Bridgewater Treatise*,' i. 494; ii. plate 59), and Mr. R. Horsman Solly obtained a fine drawing of the flower of the male in 1839 (*Proceedings of Linn. Soc.* p. 52). This male cone is preserved in the collection of the Linnean Society, and a cone afterwards produced by the same plant is in the museum at Kew. This plant is now putting up a new crown of leaves. Its fellow, the female at Chatsworth, has been in fruit many months. Miquel observes, that this species was formerly cultivated in European conservatories under the name of "*Zamia spinulosa*," or "*Z. spinosissima*." Both he and Lehmann assign the name of "*Encephalartus pungens*" to an entirely different species.

Encephalartus Caffer. This species, which in Miquel's arrangement immediately follows *E. Altensteinii*, differs from it distinctly in the form of the leaves. Also in both species the form of the leaves, and more especially the obliquity with which the leaflets are set upon

the midrib, and which increases regularly from the base of the leaf to its apex, may be traced to the imbricate veneration. In all Cycadeæ the veneration affords important aids for distinguishing both genera and species, and these characters are the more deserving of attention on account of the rare occurrence of the flowers.

The next species to *Encephalartus Caffer*, in Miquel's arrangement, is *E. longifolius*. He however represents these two species as scarcely differing except in habit. The plant in the great conservatory at Kew, named "*Zamia longifolia*," seems to me undistinguishable from *E. Caffer*. Specimens of the same may be seen at Chelsea and Chiswick, which in those gardens are called "*Zamia elegans*." At Sion House there is a remarkably fine plant of this species, called there "*Encephalartus Caffrorum*."

Probably no finer specimens of *E. Caffer* have ever been known than two, which are at Chatsworth. They were sent to the Duke of Devonshire's collection by the late Baron Ludwig, from his own garden at the Cape of Good Hope, together with all the Chatsworth specimens of this genus, excepting that already mentioned, which was brought from Walton-on-Thames. These two plants cannot be less than a hundred years old. On a close examination of the cicatrices, which are arranged in spirals on their trunks, appearances present themselves which make it probable, that not the leaflets only, but the leaves also are articulated. Many of these cicatrices are concave, smooth within, but showing the marks of bundles of vessels, which have closed after the separation of the petioles. Although, therefore, the longevity of these leaves is certainly very great, as it is in all Cycadeæ, yet they appear to have their natural term of life, perhaps ten years or more; after which they are thrown off by an effort of the plant resembling that which in common cases takes place every year. One of these two specimens is a female, and having recently borne fruit, requires a more detailed description. The cone made its appearance in the spring of 1847. In the following September it had attained so great a size, that it was thought desirable to take a cast of it in plaster, and models, made from this cast, are now in the museum at Kew, in the collections of the British Museum and of the Linnean Society, and in other collections both public and private. At the time when the cast was taken, the prevailing colour of the cone was a dark shining green, the pyramidal extremities of the rhomboids being of a lemon-yellow, streaked with brown. These colours were afterwards blended or changed, so that the surface of the cone assumed a pretty uniform bronze colour. For a long time the cone was as

compact as possible ; but at the end of the year a fissure might be discerned round the base of some of the pyramids, especially of those near the top of the cone. The cone had then become twice as large as it was in September. But the rhomboids which terminated the scales, rising in the form of truncated and tuberculated pyramids, had increased much less in the upper part of the cone than in the lower. Accordingly the scales in the upper part, extending a fourth of the way down the axis, were afterwards found to be barren. Moreover, as the rhomboids in the middle and lower part increased, they extended themselves laterally much more than vertically, and there arose thus a remarkable swelling or protuberance in the part of the cone below that, which consisted of the barren scales. In this respect the cone assumed the appearance of that of an *Encephalartus*, which is figured in Jacquin's 'Fragmenta,' plate 27. Although the barren scales at the upper part of the cone became gradually less close and compact, they continued firmly attached to the axis until the following midsummer. Had a male plant been present, it appears probable that under these circumstances fertilization would have taken place. Although the Cycadeæ are classed as gymnospermous, their ovules, with the exception of the genus *Cycas*, are so covered and guarded in the earlier stages of their development, that it is difficult to imagine how the pollen can possibly obtain access to them. But, after the barren scales at the top of the cone have begun to separate, a shower of pollen, falling on it, would easily make its way through the fissures between these barren scales, and, going in the direction of the axis, would come into immediate contact with the summits of the ovules, which are all directed towards the axis and placed at a very short distance from it. In considering the mode of impregnation, it is also important to observe, that, whereas the male cone quickly comes to maturity, sheds its abundant pollen, and decays, the female cone, being of much slower growth, remains for many weeks in that state, in which the provision here described is made for the admission of the pollen. About July, 1848, all the scales separated from the axis, beginning at the top of the cone. A coloured wax model having been made of a scale with the fruit upon it in the mature state, copies of it accompany the before-mentioned models of the cone. The scales were arranged in eight spirals, each spiral consisting of forty scales, and making two revolutions round the axis. The number of drupes containing nuts, was probably about 400, two upon each perfect scale. The scales were weighed as they fell from the cone, and their entire amount was 46 lbs. After all the scales had fallen, the axis was found

to be supported by a very short thick peduncle, not exceeding fifteen millimetres in length, and covered with down. A section having been made across the axis in its thickest part, the centre was observed to be pith, without cells, vessels, or woody fibre. This central portion was surrounded by pith, abounding in cells and bundles of woody fibre. The cells were filled with gum, and very different from the bundles of woody fibre. These latter, being destined to supply the scales, first pursued a course parallel to the axis, and then turned outwards to the bases of the scales. In relating the history of this plant, it is to be observed, lastly, that some time before the scales began to fall from the axis, a set of young leaves made their appearance on one side of its base. They were invested with a thick, silky, olive-coloured pubescence. They at first took a horizontal direction, but on the removal of the cone their tendency was upwards.

Notice of 'A Manual of the British Marine Algæ. By W. H. HARVEY, M.D., &c.' London: Van Voorst. 1849.

IMMEDIATELY on its appearance in 1841, Mr. Harvey's 'Manual of British Algæ' became a standard authority on the Sea-weeds of the British Isles. The author was fortunate in being able to avail himself of the invaluable assistance of Mrs. Griffiths, and the published labours of Dr. Greville, in addition to that store of knowledge he had himself acquired during the many years in which he had devoted the energies of a very superior intellect to the study of these most elegant and interesting plants. In the first edition, however, he unfortunately fell into the common-place, the all but universal, error of young authors, of extending the bounds of their subject beyond the limits of their knowledge, and so entailing on their works that inevitable consequence and terrible drawback, a "lame and impotent conclusion." He included in his 'Manual' those microscopic atoms which hover (in the minds of our philosophers) between the animal and the vegetable kingdoms,—a tribe for which he has no taste, which he had never made his study, and of which, consequently, he possessed no knowledge. This obscure tribe has since become the subject of two important works, by Mr. Hassell and Mr. Ralfs: and Dr. Harvey has very properly omitted it entirely from his new edition, which is confined to Sea-weeds, properly so called; which brings down their his-

tory to the present time; and which is, beyond all doubt, the best book that has yet appeared on this most interesting subject. In addition to the greater amount of matter contained in the body of the work, it has two valuable additions to the edition of 1841: an admirable glossary of terms, constructed precisely on the model of that in Newman's 'Introduction to the History of Insects;' and a series of beautiful plates, in which the general figure, fructification and structure of one species in each genus are delicately and elaborately exhibited. In fine, it is a work which every collector of our Sea-weeds must possess; and, possessing it, he will need no more costly or extensive series of illustrations.

There are, however, two points on which we incline to offer a friendly criticism; and the more so, because they are *common* errors,—errors which occur in all of our systematic botanical works,—and therefore errors which we think Dr. Harvey ought to have avoided. The *first* of these is what we might fairly term a straining after derivations; the *second* is the substitution of superficial for structural leading characters in primary groups. We will give examples of each.

Derivation. “*Ulva*, Linneus. Name supposed to be derived from *Ul*, *water* in Celtic.”—p. 216.

Our Latin dictionaries teach us “*Ulva*, weed of the sea.” Virgil, using the word, gives no hint at any derivation beyond his own language. We have not the Mantuan at hand, but recollect three passages in which the word occurs:—

Limosoque lacu per noctem obscurus in *ulva*
Delitui.

Tandem trans fluvium incolumes vatemque, virumque
Informi limo, glaucaque exponit in *ulva*.

Nec vascas salicum frondes, *ulvamque* palustrem.

Now suppose a school-boy denying the latinity of these passages, and contending that *Ulva* was derived from the Celtic; it is a matter of certainty he would have the school-calf of the Delphin edition brought into unpleasant proximity with his calf's-head. Are we to suppose Linneus had no Latin dictionary?—are we to suppose he had no Virgil?—or wherefore should he wander into the Celtic for a common and well-known Latin word?

Character of primary groups. Dr. Harvey is unusually caustic on

the ordinal division of Cryptogamia into such groups as Algæ, Lichens or Fungi. In alluding to the term *orders*, so applied to them, he pungently remarks, "we should rather call them *disorders*." This remark is followed by a subdivision of the Algæ into three subclasses, which we give *in extenso* below, and to which we invite the reader's earnest attention; and he will see that colour is made the leading distinction, and he will find this leading distinction scarcely, if at all, supported by the structural details subsequently given. Far be it from us to assert that we possess the clew to a better arrangement; but we do unhesitatingly express our conviction, that the division of these tribes will hereafter be made to rest on structural differences; and that colour, if it chance to mark such structurally distinguished groups, will be held rather as a subsidiary than a primary character. It will be a curious, interesting and highly valuable discovery, should it be found that colour is even tolerably uniform throughout a class or order of animals or vegetables; but we are of opinion this remains to be proven.

"1. *Melanospermæ*. *Plants* of an olive-green or olive-brown colour. *Fructification* monœcious or diœcious. 1. *Spores* olive-coloured, either external, or contained singly or in groups in proper conceptacles; each pore enveloped in a pellucid skin (*perispore*), simple or finally separating into 2, 4, or 8 sporules. 2. *Antheridia*, or transparent cells filled with orange-coloured, vivacious corpuscles, moving by means of vibratile cilia. *Marine*.

"2. *Rhodosperræ*. *Plants* rosy-red or purple, rarely brown-red or greenish-red. *Fructification* of two kinds, diœcious, always formed on separate individuals. 1. *Spores* (*gemmules*, Ag.) contained either in external or immersed conceptacles, or densely aggregated together and dispersed in masses throughout the substance of the frond. 2. *Spores* (called *tetraspores*, *gemmules*, Thw.) red or purple, either external or immersed in the frond, rarely contained in proper conceptacles; each spore enveloped in a pellucid skin (*perispore*), and at maturity separating into four sporules. *Antheridia* (not observed in all) filled with yellow corpuscles. *Marine, with one or two exceptions*.

"3. *Chlorosperræ*. *Plants* green, rarely a livid purple. *Fructification* dispersed through all parts of the frond, the whole colouring matter being capable of conversion into propagula. 1. *Spores* (*sporidia*, Ag.) green or purple, formed within the cells, often (always?) at maturity vivacious, moving by means of vibratile cilia. 2. *Gemmules* (*coniocystæ*, Ag.) or external vesicles containing a dense, dark-

coloured, granular mass, and finally separating from the frond. *Marine, or (more generally) found in fresh water streams, ponds and ditches, or in damp situations. (The marine species of this sub-class are alone described in the present work.)*—p. 4.

K.

On the Growth of Grass. By S. W. LEONARD, Esq.*

AFTER some preliminary observations, the author stated that about three years ago his attention was called to this subject, by observing that some grass, which was in a vessel in which he kept some animalcules, increased in height very rapidly, one shoot which he measured having grown as much as an inch and a half in twenty-four hours. He consequently thought that, by proper management, he might possibly be enabled to see it grow under a microscope. Being prevented at that time by other avocations from pursuing the subject, he was unable to verify his idea until July last, when, having procured a turf of the common meadow-grass (*Poa annua*), he manured it, and then found it grew at the rate of an inch or more in twenty-four hours. One of the young stems, with its root, was placed in a small test-tube, which being properly adjusted under the microscope, he had the satisfaction—with a power of 400 diameters—of seeing it traverse the field of view. At first no motion was perceptible; but in about half a minute the point darted forwards considerably, and after remaining stationary for a short time it again made a spring forwards, and so on at short intervals until it had entirely crossed the field. This was repeated several times, with the same results. Suspecting, however, that this mode of progression by starts could not be natural, he made some alteration in the arrangement, and then found that the motion forwards became gradual and equable. The field of the microscope included rather more than $\frac{1}{100}$ th of an inch, and the apex of the grass traversed the whole diameter in somewhat less than ten minutes. In reference to the mode of growth of this part of the plant, he stated his opinion that a gradual expansion and elongation of the cells takes place, causing the increase both in the length and breadth of the blade, but that there might also be additional cells produced near the root, which cells may be gradually developed and matured in the stem during its

* Extracted from the 'Proceedings of the Microscopical Society,' published in the 'Zoologist' for January.

growth : this he was inclined to think was actually the case, because the outer edge of the grass was serrated at regular distances. When the upper surface or cuticle was brought into focus, certain more or less hexagonal cells, coated with a very thin layer of silica, became visible : this outer covering, however, does not appear to undergo the slightest change during the progress of the growth : the serrations also appeared to cover the whole surface of the grass. Hitherto he had been unable to observe the development and growth of cells near the root, his attention having been more particularly directed to the apex of the blade, the pushing forward or growth of which he considered to be occasioned not by the before-mentioned expansion or elongation of the terminal cells, but by the addition of new matter to the base of the blade.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 768).

Daphne Mezereum. Woods, thickets and copses ; rare ? It can scarcely be held indigenous to the Isle of Wight, as hitherto it has occurred in a couple of localities only. A single small plant in a moist brambly thicket about a quarter of a mile west of Wackland farm ; Mr. Thatcher !!! The plant was shown to me by the late Mr. R. Loe, of Newchurch, with unripe berries on it, May 12, 1845. A specimen had previously been found some years since at Apse Castle, near Shanklin, by Mrs. Cheverton, of Apse farm, and by her transplanted into the garden there, where I saw it growing. In several parts of mainland Hants. In Old Park Wood, Bishop's Sutton ; Mr. J. Forder !!!—also reported to grow in Old Down Wood, Ropley, and in Brooke's Wood, Bishop's Sutton ; *Id.* In West Wood, West Meon, but very scarce, from being so much sought after to supply the gardens ; Miss E. Sibley !!! Reported to grow in the woods at Brookwood ; Dr. A. D. White. (This station is very near the last, and hence very probably correct). In the beech woods betwixt West Meon and Bramdean, quite wild, and not sparingly ; Mrs. Winkworth Moody. (Mr. Pamplin in New Bot. Guide Suppl.) This includes both the two preceding stations, with perhaps other localities, and I

had Mrs. Moody's own authority for the abundance of the Mezereon there when remarked by herself, but on visiting these woods some eight or ten years back, in the hope of procuring specimens, I utterly failed to discover a single plant, but was shown by the woodman thriving bushes in his garden, which had been introduced by him from the copses, where he believed it to be then all but extinct, from the avidity with which it was hunted out and dug up for transplanting by the cottagers, either for their own use or for sale to the nurserymen. Wherwell Wood, near Andover, and in Amphiel or Amfield Wood, near Winchester, according to Mr. Wm. Whale, but who does not give it on personal observation. "Selborne Hanger (in a part called the Scrubs), amongst shrubs at the south-east end above the cottages,"—Rev. G. White in Nat. Hist. of Selb.,—where it still grows, as I learn from Mr. Binnie, gardener to my friend Thomas Bell, Esq. The station is one perhaps open to some suspicion, yet may be as truly natural as any of the rest. Woods near Andover, plentifully; Miller (Bot. Guide.) Through the kindness of Mr. Forder I was directed to Old Park Wood, near Bishop's Sutton, March 21, 1848, and where, a few days earlier, several good flowering specimens of Mezereon were marked down, by a person instructed to search for the plant, previous to my coming to see them. But, alas! some one had been before hand with us, and carried off every flowering specimen they could find, leaving numbers of young seedlings dispersed through the wood, which in that state are overlooked or disregarded by these rapacious collectors. A few of these seedlings I took up for cultivation at Ryde, and continuing the search over the wood with my guide, succeeded in detecting a very limited number of small flowering plants, that had escaped observation from their diminutiveness, being scarcely six inches high at most. The stems of the wild Mezereon are usually simple or very sparingly branched, and seldom, I think, above a foot or sixteen inches high, although it is probable they might attain to a more considerable stature were they allowed to remain unmolested, of which there is but little chance when once they are become large enough to be conspicuous in flower. Until it blossoms, or when the flowers are past, this shrub is apt to escape notice, from its simple and slender habit aiding its concealment amongst the brushwood, and from the resemblance the leaves bear to those of the Wood Spurge (*Euphorbia amygdaloides*), a plant of the commonest occurrence in every patch of copse or thicket throughout the county. For these reasons it is a most difficult undertaking to procure fine native specimens of Mezereon, which, were the plants left to flourish undisturbed,

would in all likelihood be no rare inhabitant of our woods, since it contrives to maintain its ground in spite of marauders that seem bent on its extirpation. With us, in the wild state the flowers are very pale red, or nearly, if not quite, white, but in delicious fragrance not inferior to the deepest blush variety seen in the gardens. Cuttings of this shrub do not strike, unless perhaps in sand under a hand-glass, a process too refined for rustic horticulturists to practise, and hence probably the reason why seedlings from the woods are in such request for supplying the cottagers' gardens with a favourite, but I fancy not very enduring, occupant.

As regards the question of the actual spontaneity or indigenous origin of the Mezereon in England, it has unquestionably, both in this and the adjoining county of Sussex, the appearance of being a genuine native. Mr. H. C. Watson, in the second volume of his 'Cybele Britannica,' p. 352, has the following remarks on this head. "My own inclination would be to treat this shrub as an alien, without attempting to fill in the formula in the customary way for native plants. By Hooker it is classed with the introduced species; by Henslow and Babington with the undisputed natives. Mr. Borrer deems it "truly wild" in Sussex; Mr. Pamplin apparently takes the same view of it in Hants; the authors of the 'Flora Hertfordiensis' enter it as an unchallenged native of Herts; and so with respect to some other counties and their witnesses. The continental distribution of the species is such as rather to oppose the idea of the shrub being indigenous to Britain." The objection conveyed in the concluding sentence of this quotation is the only one which, in my opinion, carries any weight with it. I presume Mr. Watson here alludes to the inland and eastern, or, as it might be termed in accordance with his nomenclature of distribution, ultra-Germanic tendencies of this shrub. The Mezereon has its principal seat in the north and north-east of the European continent, appearing, as a general rule, to shun the maritime climate of its western coasts, and of the smaller islands appertaining to it. The species abounds most in Poland, Russia, eastern Germany towards the Baltic, and in all parts of Hungary, Galicia, and other deeply continental lands betwixt the Baltic and Mediterranean eastward beyond the Uralian mountains into Siberia, and extends northward into Scandinavia as far as the southern provinces of Lapland. It certainly approaches the western shores of central Europe in several parts of their extent between Norway and France, as it is included in the floras of Denmark proper, of Belgium and France,—all of which, however, it must be allowed, are to the

eastward of any British meridian, and so far inconclusive of the aboriginality of the Mezereon in our island. It likewise appears to be totally wanting along the entire western coast line of France and the Peninsula, but this line is itself west of the limitrophe meridian, beyond which the Mezereon is not found wild in England, and therefore does not militate against its claim to be accounted indigenous on points lying to the eastward of that line. But partial inflections or deviations are observable in the general lines of distribution of very many plants; and if we will not allow the Mezereon to be an aboriginal, it is at least clear that in the south-east of England it has found climatic conditions so favourable to spontaneous establishment and dispersion abroad, as to maintain its ground by sheer power of occupancy, in defiance of means directed against it apparently adequate to ensure its extirpation. A common notion amongst the country people is, that the Mezereon plants in the woods originate from seeds of the garden shrub dropped by birds. I have in another part of this journal (Phytol. ii. 518) expressed the value I attach to this mode of accounting for the dissemination of species of assumed foreign descent, and shall now only observe, that most of the Mezereon bushes in the vicinity of the stations where the plant is found wild have been transplanted seedlings from those very woods that are now but receiving back their inhabitants in the descendants of the latter. That such is the fact in some degree I am not prepared to deny, for as the Mezereon is doubtless indebted to the agency of birds for its propagation from one natural station to another, it would be strange if seeds of the same species from the gardens should not occasionally find the like means of transport to their original sylvan habitats. But very strong and convincing reasons must be assigned for the opinion, before I can be persuaded that the presence of the Mezereon in our Hampshire woods is due solely to seeds of the cultivated plant conveyed thither by birds: there is nothing but bare conjecture to support this idea, save certain theoretical considerations of geographical distribution, which in the present case are shown to be open to exceptions. It may be said that the silence of the older English botanists on the occurrence of the Mezereon as a British plant, is another cause for doubting its nativity; that objection, if admitted, would involve some dozens of generally acknowledged aboriginals in the same uncertainty: it has been met in a late part of these Notes (Phytol. iii. 622). For myself, I am content to follow the example of Fries in forming my judgment in this matter: "*Bene novi*," he says, "*aliis placuisse hanc plantam exclusam, illam additam, in his suo utantur judicio; equidem*

vero non aliorum commentis, sed meæ experientiæ indulgere debui;—parum vero curans utrum planta ceterum autoctona vel primitus introducta videatur” (Corpus Flor. Provin. Suec. i. Fl. Scan. p. 13.)

Daphne Laureola. In woods, copses, thickets, hedges, and on bushy banks, usually under the shade of other shrubs and trees. In many parts of the Isle of Wight, but not generally frequent there. Far more common in East than in West Medina, and in the last principally around Ryde, in many of the woods near which town it is quite a frequent shrub. In Quarr Copse, Shore Copse, Church Lane, and elsewhere at Binstead; between Quarr and Ninham; Priory woods; copses near Aldermoor farm; betwixt Aldermoor and Smallbrook farms; copses about the Wootton River, and in most other woods and thickets for a few miles about Ryde, usually sporadic, but occasionally in tolerable abundance within a limited area. It exhibits in this island a decided preference for the clay of the tertiary strata, over the chalk or any other deposit. Wooded bank betwixt Brading and Nunwell. In a wooded hollow in Appuldurcombe Park, and on the bank at the top of a sloping field immediately above Span farm; in both places on the chalk, and rather plentifully. In the Undercliff, but very rarely. By the Pulpit Rock, and wood between Steephill and St. Lawrence; Mr. Albert Hambrough !!! In St. Boniface Copse, opposite St. Boniface Cottage, in considerable plenty; Miss Hadfield! Very uncommon in West Medina. On Carisbrook Castle Hill, amongst the trees on the east and north sides, and amongst bushes at the upper end of the plantation of beeches by the way up to the castle from Newport. A single specimen picked in Stopler's Copse, betwixt Yarmouth and Thorley. I have not remarked the Spurge Laurel in many places on the mainland of Hants, but have no reason to believe it rare in the county. Selborne, as mentioned by White. I find it in Great Dorton (a wood so called), and in various parts of Selborne Hanger, especially at the end furthest from the village, when it is quite frequent in the beech woods. At Boldre Hill, near Lymington. In woods (West Meon), frequent; Miss E. Sibley. Holt Woods; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Wood at Cams. Down-lane chalkpit (Fareham); Mr. W. L. Notcutt. I once found a flower of this plant with six divisions, including within a single perianth a double set of stamens, and two ovaries,—perfectly distinct, yet without any appearance as if two of the blossoms had cohered and grown into one. This beautiful evergreen shrub is always in full flower here by the beginning of February, and in most years as early as January. The Rev. G. E. Smith tells me that the Spurge Laurel

(called, in Hants, Wood or Copse Laurel) is collected in large quantities from the woods in Sussex, by persons who go at certain periods round the country for that purpose, and bring it to the markets of Portsmouth and Chichester, where it is sold as a horse-medicine, but he was unable to ascertain for what diseases it was employed,—probably as an epispastic, from its great acrimony. I have known it so collected in this island. The pulp of the ovoid, black berries is perfectly bland, as in the Mezereon, but the seed in both is intensely acrimonious. *Passerina annua*, not rare in the extreme north of France, may possibly be found hereafter in the south-east of England.

Thesium humifusum (*T. linophyllum*). On chalky banks, downs, and dry, open pastures, more commonly in high than in low situations. Very frequent in the Isle of Wight. On Ashe Down, and elsewhere near Brading. Plentiful in the Lentenfield Pit, by Carisbrook. On grassy slopes between the woods in the valley near Rowledge, pretty plentifully. On chalky banks facing the sea at Ventnor; Miss G. E. Kilderbee !!! Common on the downs about Ventnor; Dr. G. A. Martin !!! Near the Lighthouse, Freshwater Down; Rev. G. E. Smith !!! Chalk cliff on the south side of the Isle of Wight; Dr. Stokes in With. Bot. Arr. Spit at Norton; Banks near Colwell; Brading Down. Afton and Freshwater Downs, in great abundance; Mr. W. D. Snooke, Fl. Vect. !!! Not, I believe, unfrequent in mainland Hants, but except in a station I shall speak of presently, I have never seen it off the chalk. I feel pretty certain of having seen it on St. Catherine's Hill, Winton. Once found on some high downs between Old Alresford and Stratton, 1828; Mr. Wm. Pamplin in New Bot. Guide. Flower Down, near Winchester. Basingstoke; Martyn (Bot. Guide.) Maindell chalkpit; Mr. W. L. Notcutt! Itchen Stoke; Miss L. Legge: and doubtless very widely dispersed over the whole cretaceous system. On the short, close turf of our high downs the *Thesium* is extremely dwarfed and diminutive, and its habit of growth not well displayed; but in lower, more sheltered places—as on grassy banks and chalk slopes—it acquires a very large size, and the copiously branched stems spread in all directions on the ground, or sometimes in a fan-shaped manner, to the extent occasionally of eighteen inches or more; when growing amongst taller plants, erect or ascending at their extremities. This prostrate form, which is particularly fine on the sloping sea-banks in Ventnor Cove, I have long been accustomed to regard as probably the *T. linophyllum*, var. *β. humifusum*, of Duby's 'Synopsis,' the *T. humifusum* of De Candolle's 'Flore Française,' and which Mr. Babington has adopted in the 'Manual' for the *T. lino-*

phyllum of British authors ; that so called by Linneus being probably made up of several species now regarded as distinct : but I confess the European plants of this genus appear some of them to be separated by characters savouring of too much discriminative refinement. The Rev. G. E. Smith, who remarks our *Thesium* to be “astonishingly abundant and very fine” at Ventnor, observes that it occurs there very frequently with proliferous extremities. At Norton, in Freshwater, it grows on the loose sand of the flat sea-shore at the western end of the Spit. Here the central stems are erect or ascending at base, and much stouter than the lateral and exterior, that are prostrate or procumbent. The thick, yellowish, woody root is said by Mr. Mitten to be parasitic. The little white flowers have a remarkably neat look, and the tuft of white hairs on the perianth—reaching up to, but not united with, the anthers—is a curious part of their structure, the use of which is by no means apparent.

‡*Aristolochia Clematitis*. Naturalized about habitations and old ruins, especially of religious hooses ; very rare. Under the old garden wall of the monastery of St. Cross, near Winchester ; Dr. A. D. White !!! At Borden Lodge, Wolmer Forest, near Linford Headley ; Mr. Prettyjohn !!! Abundant in both places, and in each introduced before the memory of the present occupiers. Borden Lodge is an old and lonely tenement on a wild part of Wolmer Forest, now inhabited by a Mr. Wm. White, I think one of the forest keepers : the *Aristolochia* was growing in considerable plenty in sandy, cultivated ground along the palings in front of the house, and amongst potatoes, when I visited the spot in September last ; one specimen was gathered in fruit, which I believe is rarely perfected when formed, and this it seldom is from peculiarity of structure in the flower opposing an obstacle to impregnation of the ovary, besides the disposition the plant has to increase by the widely creeping root. Mr. White being from home when I called, I was unable to learn whether the Birthwort occurred in other places about the premises, but I understand the date of its introduction is unknown to him and his forest neighbours, who regard it as a nameless curiosity, and from its strong smell endowed, probably, with great medicinal virtues.* Although unquestionably not indigenous, the Birthwort is perfectly and permanently established in both stations, beyond all likelihood of extirpation, and quite as much at home here as in any of the recorded British habitats that I have seen, which are all equally artificial in their origin with our Hamp-

* See p. 668 of the present volume.

shire ones. Hooker (Brit. Flo.) gives "copses and pastures," as well as "amongst old ruins" in the east and south of England: what known stations are there in this country for the *Aristolochia* answering to the former description? Hudson (Fl. Angl.) says, "Habitat in sylvis et sepibus;" Relhan also (Fl. Cantab.), "Woods and hedges:" neither of these authors makes mention of ruins as an habitual locality for the plant. Of what kind are the Kentish and Cambridgeshire habitats alluded to in the works just quoted? I once found *Aristolochia Clematitis* apparently wild in a wood in the Park of St. Cloud, and many stations are given for it in the excellent Paris flora of Cosson and Germain, whilst it abounds in rough, stony places in the south of France, perhaps truly spontaneous; yet is it more frequently seen as a septal, viatical or ruderal, than as a sylvestral species in middle and western Europe,—the phrase of its occurrence generally being, "Habitat in vineis, cultis, sepibus." It is assuredly most abundant and at home in the east of Europe,* whilst its oriental prevalence is strongly hinted at in the old English name of Saracen's Birthwort, which may countenance a suspicion of its having been perhaps introduced to this country, and even to western Europe generally, by the crusaders on their return from Palestine, as a medicinal plant. I have, however, shown in other parts of these Notes, the danger of drawing conclusions from such uncertain premises, and however harmless and allowable it may be to put forward deductions of this kind as purely speculative, they ought never, I think, to be adduced as grave arguments against the indigenous claims of a species, or made an excuse for imposing or continuing the symbol of doubt in the absence of better testimony.

* Frequent, for example, in the Russian Steppes, in which country it occurs as far north as Moscow, lat. $55^{\circ} 45'$. I have seen it plentiful in the Brigittenau at Vienna, where it is truly indigenous, and furnishes the only pabulum of the larva of the beautiful butterfly *Thais Polyxena*, which is sometimes plentiful about the Austrian capital.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
January, 1850.

(To be continued.)

Explanatory Notes on certain British Plants for distribution by the Botanical Society of London, in 1850. By H. C. WATSON, Esq.

WHEN last year addressing to the 'Phytologist' (Phytol. iii. 478) a paper on the same subject as this present one, two circumstances appeared to me to be very probable: first, that I should not continue a member of the Botanical Society of London later than 1849; and, secondly, that the Society's periodical distribution of specimens would either cease altogether or commence a rapid decrease in value and regularity. Neither of these expectations has been practically verified at present.

The Society's distributions have been continued mainly through the opportune and valuable assistance given thereto by Mr. French, of London, and Mr. Moore, of the Chelsea Garden. Without the energetic aid of these powerful allies Mr. Dennes might have been left alone, and would in that case have found himself quite unable to effect the arrangement and distribution of the specimens. All three of these gentlemen have professional avocations to occupy closely their time and attention by day; and they were enabled to manage the botanical distributions of last year only by devoting entire nights to the task. How long their botanical zeal will urge them to this annual exertion and sleep-sacrificing devotedness in carrying out the objects of the Society, it might be unsafe to predict.

As for myself, although I have renounced individual responsibility in the future management of the Botanical Society of London, and will not be answerable for the dead-lock, towards which some other members are fast forcing it, I find that there still exists a tie strong enough to hold me to the Society as an acting member,—one that cannot be curtly cast off, or materially loosened at present, without some breach of good faith to the *foreign* contributors. Steps have been taken under my own suggestion, and mostly through my own correspondence with botanists abroad, which have virtually placed the Botanical Society of London under pledge or promise to distribute any foreign specimens that may be sent to it, and also to make a return for the same to the respective contributors. Several of these foreign botanists not unreasonably look to me for the fulfilment of the Society's promises that have been conveyed to them by or through me; and so far as this can be accomplished by an individual member of a Society, while struggling against very serious impediments, consequent on the disorderly management of other parties, I may acknow-

ledge myself under a sort of obligation to carry out and act up to the promises so given. Hence I have remained a member; and during the past year I have devoted considerable time to the distribution of the foreign specimens; many of which, indeed, had been originally the duplicates from my own herbarium.

In respect to the British specimens for distribution in 1850, my interference and responsibility are only the same as they were last year. Early in January, I very rapidly looked through all the British parcels that had been received between Michaelmas and Christmas; dividing the specimens into three assortments, as heretofore; namely: firstly, novelties and varieties not included in the second edition of the 'London Catalogue of British Plants,' together with doubtful species or specimens requiring some more special explanation than their labels can convey; secondly, those labelled under incorrect names, or sent (contrary to regulation) not labelled ready for distribution; thirdly, the great mass of the specimens that I saw no reason for placing in either of the two former assortments, while passing them hastily under view; although it is far from improbable that some of these last would have been separated also, if I could have spared time to examine the specimens and labels more closely and completely.

It is on the specimens placed in the first of the three classes mentioned, that I now propose, as in several preceding years, to make some explanatory comments addressed to the members who may shortly receive the plants. Divided into sets, these specimens will be made up into small packets, as far as they will go; leaving only three or four of the species for introduction separately into the desiderata parcels of those members whose names may stand lower down in the return-list.

This winter, unfortunately, the supply of "Novelties, &c.," is not so good as might have been expected, either in number of species or number of specimens. But not unlikely I may, in my haste, have passed over some of the novelties without recollecting at the moment that their discovery dates later than the last edition of the Society's Catalogue. Indeed, *Anacharis Alsinastrum* is left out of the "Novelty" group in this way; for, having heard so much about this plant and its localities in 1848 and 1849, I did not recollect at the time of looking through the parcels, that the first announcement of it in Britain had occurred while the Catalogue was in the press. I presume, however, that almost every member received a specimen last year.

Viola canina (of Authors). These violets are the most numerous among the specimens for particular comment,—not as novelties, indeed, but as examples to illustrate and elucidate what has been greatly confused and misunderstood. In a paper printed in the ‘Phytologist’ for September last, I distinguished the British violets that have passed under the name of “canina,” into three apparent species (Phytol. iii. 638), denominated those of Gerarde, of Dillenius, and of Smith. The first of these three is abundantly common in England, and is known to every botanist; the second is probably frequent, including forms of varied luxuriance which have been variously named; the third I suppose to be quite rare comparatively with the other two.

Viola (canina) sylvatica (Fries). The first species, or *Gerarde’s violet*, has never been distributed from the Society, simply because it is everywhere common in England. Nevertheless, in the course of last summer I became well convinced that it would be necessary to distribute correctly labelled examples of this very common species, in order that the members of the Society might clearly understand to which of the Canine violets the name of “sylvatica” is applied correctly. I label my examples of Gerarde’s violet under the two names of “*Viola sylvatica*, Fries,—*V. canina*, Sm.” These two names may be taken as synonymous, although doubtless Smith would have applied the name of “canina” equally to the larger examples of the second species. Most of my specimens are in their autumnal state, the season being far advanced before I felt the necessity for distributing this species along with the next, in order to make both be understood by comparisons. The dwarf form of *V. sylvatica*, which the late Mr. E. Forster mistook for (or, perhaps, more strictly, mingled and confused with) Smith’s *Viola flavicornis*, I must hope to procure for distribution in the spring of 1850; having been too late for it in 1849.

Viola (canina) flavicornis (Smith). The second species, or *Dillenius’s violet*, was distributed by the Society in the last and preceding years, from Claygate, in Surrey, from Tiptree Heath, in Essex, from the sand-hills near New Brighton, on the coast of Cheshire, and sparingly from some few other localities. The numerous specimens for distribution in 1850, are partly from my own neighbourhood in Surrey, collected about Esher and Claygate; and partly from New Brighton, collected by Mr. Francis Brent and Mr. Thomas Sansom. I think that the specimens from Surrey and Cheshire will equally be referred to the species first distinguished, in this country, from *V. canina-sylvatica*, by Dillenius; although both he and Smith appear to have erroneously supposed that their species (*V. flavicornis*) was

always of small size. The Botanical Society has never received specimens of true *Viola lactea* (Sm.). At least two dissimilar forms (possibly belonging to two different species) have passed under this latter name, and among botanists who might be supposed very likely to know the species of Smith. Indeed, Smith himself probably mixed two species; for the plant figured as *V. lactea* in 'English Botany' is scarcely the same with the specimens preserved in Smith's herbarium as *V. lactea*.

"*Viola Curtisii*" (?) — *V. Rothomagensis*? Again this dubious plant, intermediately resembling both tricolor and *Curtisii*, comes before us from the New-Brighton sand-hills, on the Cheshire coast, sent by Messrs. Brent and Sansom. The labels bear the name of "*Curtisii*," as quoted; and while I cannot affirm this to be correct, equally I feel unable to assert that it is incorrect. See 'Phytologist,' iii. 46, and 'Cybele Britannica,' i. 183, for the grounds of this uncertainty. Although our coast plant is much less hispid than French specimens of *V. Rothomagensis*, the plant of the Cheshire coast closely resembles that alleged species in other respects. Another link in the series, standing between *Curtisii* and *Rothomagensis*, is the yellow-flowered and hispid *Viola* from Portugal, numbered 391 in the 'Flora Lusitanica' of Welwitsch, but distributed by him without specific name on the label,

Poterium muricatum (Spach). Mr. Gibson has sent some examples of this species, which will probably be the most acceptable plant in the parcels of this winter to some of the members. There seems good ground to anticipate, however, that it will be found in numerous localities when looked for. It should be collected in the seeding stage, as being then more readily distinguished from ordinary *P. Sanguisorba*. The name of *muricatum* may perhaps have to be suppressed in favour of another. See 'Phytologist,' iii. 707 and 715, for reports of localities.

Melilotus arvensis (Wallr.). The supply of this species is very limited. For the specimens received the Society is indebted to Mr. F. J. A. Hort, who labels them from Bottisham Lode. See 'Phytologist,' iii. 344 and 481.

"*Fumaria agraria* (Lag.)." In his valuable contribution, Mr. Hort sends also several examples of this plant, which is rather a novelty by name than by reality; for it is, perhaps, the most frequent form of "*F. capreolata*," as formerly understood by English botanists. Doubtless many botanists have it already in their herbaria under this latter and older name. Distinguishable from the typical *F. capreo-*

lata, by its smaller sepals, darker flowers, and pedicels not at all or very slightly recurved, with some other less obvious characters. It is a curious circumstance in connexion with this species, that Mr. C. C. Babington has referred three specimens of an Azoric *Fumaria*, grown under different conditions of place and season, to as many different species, so called; namely, to *F. capreolata* (var. *media* of Webb), "scarcely a variety,"—to *F. muralis*,—and to *F. agraria*, when raised in England from Azoric seeds. See Bot. Gaz. i. 63. To my eyes, after examining scores of those Azoric *Fumarias*, living and dried, they seem all to belong to one single species, and to be so little different, and so gradually dissimilar, as to be scarce worthy of separate names, even in the light of varieties only. But whatever be thought about this English *F. agraria* as a species, it is certainly no new discovery; being the *F. capreolata* of various local writers and collectors.

Stachys ambigua (Smith). Most of the specimens that have been sent to me, labelled under this name, have been ordinary examples of *S. palustris* with the leaves slightly stalked. To assist in correcting this frequent error, I last summer dried about thirty specimens of the true plant of Smith, or what is understood to be such by myself. These will be distributed in the Society's parcels; because any botanist who may possess *S. palustris* in his herbarium, labelled as *S. ambigua*, will not be likely to mark Smith's plant as a desideratum. My specimens are partly from the parish of Long Ditton, in Surrey, and partly from the adjacent hamlet of Hook. Those from the former were found in a bean-field, and are full length specimens; those from the latter locality were collected in a ditch, from which they grew up through thick bramble bushes, with stems too long and straggling to be extricated and pressed in whole lengths. Both *S. sylvatica* and *S. palustris* abound in the vicinities; but the stations of *S. ambigua* are each limited to a very small space of ground.

"*Sinapis Cheiranthus* (Koch)." Some five or six specimens of the *Sinapis* from Gower, in Glamorganshire, have been sent to the Society, thus labelled, by Mr. Henfrey. I should rather have named them *S. monensis*, on account of the glabrous bases of the stem and leaves, which have only a very few scattered bristles at most; while in real *S. Cheiranthus* of the French coasts, these parts are plentifully hispid. The pods of the Welsh plant are also more distinctly angular. *S. monensis* may, however, be simply a variety of *S. Cheiranthus*; or this a variety of that. These few specimens are placed among the doubtfuls, because I could not feel warranted in erasing the name written

on their labels by the contributor, although I still regard that of 'monensis' to be the correct name for the Welsh specimens, while both stand in the Society's Catalogue. See 'Cybele Britannica,' i. 165, where the doubts concerning this Welsh plant were particularly mentioned. I presume that Mr. Henfrey adheres to the original announcement, reporting the plant as "S. Cheiranthus."

Arenaria media (Linn.?). Mr. George Maw has sent some examples of this plant, under name of *A. rubra*, and located from Hartland Quay, North Devon. I have ventured to add "var. *media*" on the labels. It is distinguished from the true *A. rubra* by its perennial root and other slight characters, and is perhaps often commingled with the other marine *Arenaria*, with larger flowers and winged or bordered seeds, which represents the Linnean *A. marina* in several English herbaria. Example of this latter are also sent by Mr. Maw, and are distributed with the *A. media* (?), in order to facilitate comparisons between these maritime and allied, yet probably distinct, species. To which of them do the names of "*media*" and "*marina*" truly belong? Some authors give the name of *media* to the plants with winged seeds. See 'Phytologist,' iii. 321 and 482. In cases where confusion has occurred, and is likely still to occur, between two resembling plants, it is an excellent plan to send equally numerous examples of both, even although one of them may be quite a common plant. I have only to regret that Mr. Maw did not send 50 or 100 specimens of each. Indeed, in this, as in many other instances, the Society's rule which directs members to send *few* species, but *many* specimens in their parcels, would have well applied. The best parcels of British plants received by the Society, include only three to six species, with ten, twenty, fifty, or even a hundred specimens of each, according to rarity or novelty. Parcels of this kind not only save a vast deal of trouble to the distributors in London, but in the aggregate they produce also a much better collection and supply of varieties. Parcels that include many species, few specimens of each, give far more trouble, and are worth less in their aggregate result when all brought together.

Lastrea uliginosa (Newm.). Mr. Thomas Moore sends a few cultivated examples of this fern, which has recently been described by Mr. Newman as a species distinct from *L. spinosa* and *L. cristata*, both which it resembles a good deal in the intermediate form of the frond, character of rhizoma, &c. Mr. Moore labels it a variety of *L. cristata*, while Sir William Hooker deems it barely a variety of *L. spinosa*. Some years ago, Mr. Wardale sent a large supply of *L. cris-*

tata to the Society ; and among the specimens were many examples of the fern since named *L. uliginosa*. All were labelled alike, by name of *cristata*, and with printed labels. But observing the difference of character, I made a large mark of interrogation “?” on the labels of the *uliginosa* form, with pen and ink ; and I presume that they have been thus distributed from Bedford Street. See ‘*Phytologist*,’ iii. 677, for Mr. Newman’s description of *L. uliginosa*.

Cystopteris fragilis var. *Dickeana* (Moore). Mr. Thomas Moore has likewise sent a dozen cultivated examples of this peculiar form, which will assist in making it known to members. On seeing them, botanists will be almost induced to pronounce the plant distinct from *C. fragilis*, polymorphous as that species (if not group of species) is known to be. The reference is to Mr. Moore’s work for description.

“*Hieracium sylvaticum* c. *pictum* (Hook.).” Plants thus labelled are sent by Mr. Thomas Kirk from Arbury Hall, Warwick. I do not myself know the plant so named by Sir William Hooker. Mr. Kirk’s specimens appear to me one of the connecting links between *H. sylvaticum* and *H. maculatum* of Smith ; rather less spotted and rigid than the state in which the latter is usually found.

“*Polygala depressa* (Wender.).” Dr. Mateer has sent several good examples of a *Polygala* thus labelled. But I do not see how it can be described by written characters, so as to distinguish it from our ordinary *P. vulgaris*. The “five-flowered raceme,” on which Koch puts an emphasis, is clearly inadequate if these specimens are rightly labelled ; the number of flowers being very variable, and “ten” would likely be nearer the average than “five.”

“*Atriplex patula deltoidea* (Bab. ?).” Mrs. W. Jones has sent specimens of an *Atriplex* thus named, from Eastbourne, in Sussex, and from Woolwich, in Kent. I know Mr. Babington’s *A. deltoidea* only from a starvling and indifferent Guernsey specimen, which he kindly took some pains to obtain for me. Putting that one specimen beside the luxuriant plants of Mrs. Jones, there is considerable dissimilarity ; but I can readily conceive that mere luxuriance of growth might cause differences as wide between examples of a single species of *Atriplex*. Those of Mrs. W. Jones are probably to be referred to the same species with the common *Atriplex* of Surrey, which Mr. Babington declined to name ; as mentioned in the ‘*Cybele Britannica*,’ ii. 325.

“*Bromus pseudo-velutinus*.” This is sent by Miss Barnard, from a field at Odsey, in Hertfordshire (or Cambridgeshire ?). It much

resembles that usually dwarf and littoral state of *B. mollis*, which has been erroneously called "*B. velutinus*" by several British botanists. These inland specimens have culms fully four times as tall as the shore plant, and the pubescence of the glumes or pales is shorter. They are, indeed, simply examples of *B. mollis*, with the pedicels and spikelets much shortened, and the panicle thus rendered more close or compact. *B. commutatus*, not *B. arvensis*, was growing in the same field with the present.

Pyrethrum inodorum, proliferous variety. This interesting monstrosity is sent by Mrs. Russell, from Seaton, in Devon. It is highly proliferous, like the Hen-and-Chicken Daisy of the gardens; about a score of secondary heads springing from the axils of the involucre bracts, on pedicels of a quarter or half an inch in length. Several of these secondary heads are again proliferous, giving origin to a few tertiary heads. On a hasty glance the specimens might be referred to the order of Umbelliferae, as likely as to Compositae.

Hyacinthus non-scriptus, with foliaceous bracts. This is remarkable only for the continued production of leafy bracts during several successive years after removal into my garden. The original wild specimen, growing under a hedge, in Claygate, Surrey, had leaf-like bracts of three inches long to each flower. In the garden, in dry ground, and exposed to the sun, they have become reduced to half the size; but still, each year, a few long ones are produced. There are other varieties and monstrosities, sufficiently explained on their labels, or sufficiently obvious without explanation.

Rubi. The Society is indebted to the Rev. A. Bloxam for a series of specimens in duplicate, which will doubtless be acceptable to those members who delight in these troublesome bushes. I regret, however, to see them sent with loose labels; a probable consequence of which will be, that half of their labels will get misplaced to the wrong species before they reached their final destinations. Mr. Bloxam is doubtless a very methodical and accurate botanist; and, as such, he will scarcely conceive the necessity that exists for guarding against the thorough confusion and commingling, and almost utter absence of order and method, which prevail at No. 20, Bedford Street. The Rev. W. A. Leighton also sends some *Rubi*, but these are mostly single examples of a species, not in duplicate, and therefore little available in a distributing society.

Cultivated Plants. Several plants are distributed from my garden, either because there is difficulty in obtaining wild examples of the species, or for some other special reason. Mr. Thomas Moore also

sends a considerable number of garden specimens, which I have not separated from the general stock of duplicates, but have preferred to leave them there, whence their own contributor, one of the active distributors of the Society, may arrange and distribute them as he shall think fit. In reference to the distribution of garden-grown specimens, however, I would here make a remark or two. In the instance of species where there is difficulty or impossibility of obtaining wild examples enough, or when there is some special point to be illustrated, or some comparison to be made, in which the garden-raised specimens may usefully assist,—in any of such instances I would willingly distribute cultivated plants, as a necessity or utility. But, otherwise, it does not appear desirable that members should fall into the practice of contributing garden plants, simply as examples of species, wild specimens of which can readily be obtained by marking their names in the Society's list of desiderata. As an instance where the distribution of garden-grown specimens of very local species, in the absence of wild specimens, seems to be quite allowable and desirable, I may refer to Mr. H. O. Stephens's examples of the very rare *Allium Ampeloprasum*, garden grown, from roots originally procured at the locality of Steep Holmes. But there could be no call or necessity whatever to substitute garden examples of *Anacharis Alsinastrum*, *Cladium Mariscus*, and other things which, although somewhat local and even novel, can be got in any quantity at their natural localities, easily within reach of various members of the Society.

Misnomers. I am happy to say that the misnomers are now quite few comparatively with those on the labels formerly sent to the Society, or committed by the curators and distributors in Bedford Street. The number of these errors would ere now have been still more reduced, if I could have persuaded Mr. Dennes to adopt a practice which appeared very desirable in my own eyes, but to which he always seemed disinclined or indifferent. My constant effort has been to render the Botanical Society instrumental in correcting or preventing those errors of name which are continually causing false records of localities to be printed, through the name of a wrong species being mistakenly connected with the locality recorded. But our valuable Secretary (who really cares nothing about botanical *science*, although caring so much, and doing so much, for the Botanical *Society*) cannot enter into my views in this respect. I have repeatedly urged that an example of any misnamed species, with its label corrected, should be returned to the member who sent it, in his next parcel from the Society. This course not being taken, although expressly announced

in the 'Regulations,' the contributor of mislabelled specimens is of course *confirmed in his error*. A striking instance occurred in a parcel received this winter. Numerous examples of *Anthriscus vulgaris* and *Arabis hirsuta* were sent labelled under the false names of *Caucalis daucoides* and *Turritis glabra*. The specimens were excellently dried, with their labels printed in full. Here the contributor had taken much trouble in collecting and drying the plants, and had incurred some expense in printing their labels,—all for nothing; the labels being erroneous, and the species collected not being required at all. Now, one or both the same misnomers had been sent by the same contributor on a former occasion, also with the labels printed; and if a specimen and corrected label had been then returned to him, his repetition of useless trouble and cost might have been avoided; and the Society might have got something useful instead of the same useless errors being sent over again.

Unequal value of the parcels. Before concluding the present notice, which has already become rather lengthy, I would yet say a few words on this subject. There is enormous inequality in the value of the parcels, in respect to the selection, the drying, and the labelling of the specimens. One parcel from Mr. Gibson, Mr. French, Mr. Taylor, Mr. Salmon, the Rev. Mr. Crotch, and others who might be named, is worth ten or twenty parcels from as many other members, whose names I will not just now mention in the disparaging contrast; and the rather, because in some instances the real fault may rest with the Secretary in omitting to give copies of the 'Regulations' to new members. The difference between the two sets of contributors otherwise is, that the former act up to and in accordance with the printed 'Regulations' issued by the Society; while the second set appear to hold themselves at liberty to attend to the rules as little as possible, and thereby to give as much trouble as they may choose to the distributors in London, and to make a valueless donation for the good specimens they obtain through the attentive exertions of the former class of good contributors. The Society musters near two hundred and fifty members. For my own part, I wish heartily that it had only the fifty, and was without the two hundred. But far the greatest '*desideratum*' in the Society is that of a *Curator*, qualified for his work by a competent knowledge of species, who would wholly relieve Mr. Dennes from the duties of that office, which are unfairly, and not wisely and profitably, added to those of the over-tasked Secretaryship. Three qualities are required in a Curator for a distributing Botanical Society; namely, clear knowledge of species,—methodical arrange-

ment,—rapidity of thought and action. Neither Mr. Dennes, nor any one of the four successively appointed Curators, has possessed all three qualifications; while a majority of the five have only brought one of these qualifications to a task which required all of them. I have remarked that a competent Curator is the *chief desideratum*: it is almost the only want in the Society now; for all the other requisites appear to be attained, or to be within reach of attainment. But I still see that the single want is greatly disarranging, and I fear that it must shortly arrest, the whole machinery and action of the Society.

HEWETT C. WATSON.

Thames Ditton, Surrey, Feb. 1, 1850.

Contents of 'Hooker's Journal of Botany,' Nos. 1—14; for 1849-50.

REFERRING to the slight mention of the above periodical, under its change of name and price, in former Nos. of the 'Phytologist' (Phytol. iii. 452 and 776), we proceed now to give the list of 'Contents' of the back numbers, preliminary to a monthly continuation of the same.

Number 1.

Extracts from the private Letters of Dr. J. D. Hooker, written during a Botanical Mission to India.

Notes and Observations on the Botany, Weather, &c., of the United States, made during a tour in that country in 1846 and 1847. By Wm. Arnold Bromfield, M.D.

Botanical Information. Notices of Books.

Number 2.

On the Awns of Nepaul Barley. By the Rev. J. S. Henslow.

Extracts from the Letters of Dr. J. D. Hooker. Continued from the former No.

Botanical Information. Notices of Books.

Number 3.

On the genus *Triguera* of Cavanilles. By John Miers, Esq. Dr. Thomas Thomson's Scientific Mission to Thibet.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information.

Number 4.

Decades of Fungi. By the Rev. M. J. Berkeley.

Dr. Bromfield's Notes on the Botany, &c., of the United States.
Continued.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 5.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

On the genus *Atropa*. By John Miers, Esq.

On *Anatropal* and *Orthotropal* Ovules. By Benjamin Clarke, Esq.

On some Chinese Plants. By H. F. Hance, Esq.

Botanical Information. Notices of Books.

Number 6.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Notes on new or little known Plants of China. By H. F. Hance, Esq.

Botanical Information. Notices of Books.

Number 7.

Charæ Australes et Antarcticæ. By Dr. Alexander Braun.

Some Account of the Vegetable Ivory Palm (*Phytelephas macrocarpa*). By the Editor.

Botanical Information. Notices of Books.

Number 8.

On the genus *Withania*. By John Miers, Esq.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Decades of Fungi. By the Rev. M. J. Berkeley.

Descriptions of some new Genera and Species of Plants, collected in the Island of Hong Kong, by Capt. J. G. Champion, 95th Regt.
By George Gardner, Esq.

Botanical Information. Notices of Books.

Number 9.

On two Balsam Trees (*Balsamodendra*) from Scinde. By J. El-lerton Stocks, M.D.

Dr. Bromfield's Notes on the Botany, &c., of the United States.
Continued.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 10.

On the Structure of the Pistil in *Eschscholtzia Californica*. By the Rev. J. S. Henslow.

On a Fungoid Gall from Pará. By the Rev. M. J. Berkeley.

Characeæ Indiæ Orientalis et Insularum Maris Pacifici. By Dr. Alexander Braun.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Description of Plants collected in Hong Kong. Continued.

Botanical Information.

Number 11.

Description of Plants collected in Hong Kong. Continued.

Pucha-Pat, or Patchouli (*Pogostemon Patchouli*). By Sir W. J. Hooker, K.H., &c.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 12.

Genera Floræ Americæ Boreali-Orientalis Illustrata. By Isaac Sprague; with descriptions by Asa Gray. [An explanatory notice of the work, with criticisms on one or two technical points; evidently not from the pen of the usual writer of the "Notices of Books."]

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 13.

Remarks on the Flora of the Nicobar Islands. Translated by Dr. Wallich.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 14.

Contributions to the Botany of Western India. By N. A. Dalziel, M.A.

Decades of Fungi. By the Rev. M. J. Berkeley. Continued.

Note on *Microcachrys*, *Hook. fl.*, and on a new allied genus of Coniferæ of Van Diemen's Land. By William Archer, Esq.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Contents of the 'Botanical Gazette' for February, 1850.

Review of the Swiss Characeæ. By Al. Braun. [Translation from the 'Flora' of March 7, 1849.]

Cornish Plants not included in the 'Cybele Britannica.' By Francis P. Pascoe. [A list of species, ascertained by Mr. Pascoe, or reported on other authority, to grow in the county of Cornwall; but which are not specially mentioned as Cornish plants in the first volume of the 'Cybele Britannica.' Sixty-eight species are enumerated, including some introduced plants, and about twenty which have not been seen by Mr. Pascoe himself, either living or in a dried state. *Ranunculus tripartitus* (E. B. Supp.) may be added to the list.]

Literature. Including a review of Harvey's 'Manual of the British Marine Algæ'; and monthly list of contents of botanical journals.

Proceedings of Societies. Botanical Society of Edinburgh; Tyne-side Naturalists' Field Club; Alnwick Scientific and Mechanical Institution.

Miscellanea. Record of Localities; Additional Note on the capsules of *Viola*, by W. H. Purchas, Esq.; Natural History of the Date, from Journ. de Pharmacie et de Chimie; New method of drying plants; Collections of Zeyher's South African Plants on sale.

Extracts from the 'Proceedings of the Linnean Society of London.'

(Continued from page 789.)

On the Development of the Ovule in Orchis Morio, L., by ARTHUR HENFREY, Esq., F.L.S., &c.

THE paper contains the results of a series of observations made in May, 1848, which Mr. Henfrey presents to the Society, partly because he believes that in the present state of the question all evidence derived from careful observation is of some value, and partly because he has succeeded in obtaining a more complete series of figures illustrating the successive conditions of the ovule than has yet been published; Mohl, who gives the most complete account of the development in *Orchis Morio*, having given no drawings. In the first stage, examined on the 3rd of May, the ovules of flowers which were just opened and were without signs of pollen on the stigmatic surface, were just curving over towards the anatropous position; the nucleus

projected beyond the cells forming the single coat of the ovule, and consisted of a large central cell (the embryo-sac) enclosed by a layer of very delicate cells of small size, constituting a proper coat of the nucleus. On the 9th, the ovules of fully-expanded flowers were not much altered, except in the much clearer definition of the walls of the cells. The embryo-sac was filled with a clear colourless fluid, in which floated minute black atoms. In some flowers the stigma was smeared with pollen, which sent down numerous tubes, about $\frac{1}{4000}$ th of an inch in diameter, and at most one-fourth of the size of the smallest surrounding cells. On the 13th, when the flowers were withered and the stigmas were covered with pollen, a dense bundle of tubes lay in the midst of the lax tissue of the canal leading to the cavity of the ovary. Some of the ovules were completely anatropous, while others were about three-fourths curved, the forming being about $\frac{1}{1000}$ th of an inch in length. The two coats of the ovule were now distinctly evident, and the nucleus was still covered by its own cellular coat, and still contained only the clear colourless fluid with black points. On the 16th, the pistillary cords extended nearly to the base of the ovary, presenting all the characters of pollen-tubes, and apparently continuous with those derived from the pollen on the stigma. Both coats of the ovules had become considerably developed, and the inner had grown up far beyond the nucleus; the embryo-sac had lost its proper cellular coat, had acquired the aspect of a large ovoid sac attached by a pedicle to the chalazal region, and contained opalescent mucilaginous matter (protoplasm), in most cases accumulated at the ends, chiefly at that next the micropyle. On the 20th, the last-mentioned appearance continued; and at the micropyle end, one, two or (usually) three minute vesicles had been formed, always seeming to originate as cavities in the mucilage, and not as if derived from the formation of a membrane on the outer surface of a nucleus or cytoblast. These vesicles soon took the appearance of distinct cells with exceedingly delicate walls, and undoubtedly existed before the pollen-tubes entered the foramina of the ovules. In those ovules which had been penetrated by the pollen-tubes, these were traced by Mr. Henfrey through the wide mouth of the outer coat and the narrow canal of the inner, as far as the apex of the embryo-sac, which however they never entered, but generally appeared to be directed a little to one side and to lie in contact with its outer surface, just over the place where the minute vesicles lie within. On the 31st, the previous observations were repeated and confirmed on specimens in various stages of growth. At this period, in some of the embryo-sacs one of the vesicles had

become divided into two cells by a horizontal septum, the upper cell dividing again and growing out through the endostome in a conical form to produce the confervoid filament described by Mr. Brown, and which Mr. Henfrey believes Prof. Schleiden to have mistaken for the pollen-tube. On the 3rd of June, the author again satisfied himself that the vesicle within the embryo-sac (the germinal vesicle) is the first cell of the embryonic body; it generally exhibits a slight collection of protoplasm at its base, and soon after the pollen-tube reaches the surface of the embryo-sac divides into two cells, the upper dividing again and growing into the articulated filament, the cells of which are formed by the production of septa in the same way as in *confervas*, hairs of phanerogamous plants, &c.; the mucilaginous layer (or primordial utricle of Mohl) being rendered very evident by the application of iodine. At the same time the lower part of the embryonic body enlarges and soon perfectly fills the embryo-sac, the process of cell-formation by which the embryo is produced varying apparently in different cases. Generally the lowest cell enlarges very much and becomes filled with dark mucilaginous matter, and then this is soon divided into a number of cells by the formation of septa. In some cases two of the germinal vesicles undergo development, and two confervoid filaments are produced.

From these observations Mr. Henfrey concludes that the embryo is really produced by the ovule itself; that the germinal vesicle exists within the embryo-sac before the pollen exerts its influence; that the pollen-tube penetrates the coats of the ovule to reach the embryo-sac; and that the passage of the pollinic fluid through the intervening membranes impregnates the germinal vesicle, and determines its development into an embryo. The investigations having been made with every precaution, and the results being in perfect accordance with those of Amici, Mohl, Müller and others, he believes them to be a sufficient refutation of Schleiden's views so far as the plant in question is concerned. He regards, however, as points requiring further investigation, the question whether the whole of the pistillary cords are composed of filaments directly produced by the pollen granules; whether there is any relation between the application of the pollen on the stigma and the development of the germinal vesicles; and whether the production of the confervoid filaments is a normal process, which is open to doubt when only observed in ovaries containing such an abundance of ovules as those of *Orchis Morio*.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 768).

Empetrum nigrum, although now apparently extinct, has certainly occurred in Sussex (near Amberley), and may therefore be looked for with some hopes of success on our boggy tracts and forest peat. Its discovery would be an acquisition to the Hampshire flora of no small interest, as being at once the type and sole British representative of the small order Empetraceæ.

The Box (*Buxus sempervirens*) should be looked for on the northern slopes of our chalk downs. It is profusely abundant on most parts of Sidon (Sidedown) Hill, in Highclere Park (Lord Caernarvon's), scattered over its shelving sides as if quite spontaneous, and said to disperse itself freely by seed. I could not, however, satisfy myself of this fact by finding young plants newly springing up, and therefore omit it from the category of *naturalized* Hampshire species. It is an evident, and indeed acknowledged, introduction at Highclere, and only found on Sidon Hill, which is wholly within the boundaries of the park, the most extensive and picturesque in the county.* I believe there are no recorded habitats for the box on the continent quite so far to the north as the well-known and now sole existing station for this shrub in England at Box Hill, in Surrey,† but it is an undoubted native of calcareous hills in southern Belgium, between latitude 50° and 51°, within a degree of the Box Hill station, the aboriginality of which has by some been called in question as usual.

Euphorbia Peplis. On sandy sea-shores; extremely rare, and I fear now quite extinct in Hampshire. A single specimen found in Sandown Bay, in this island, now some years since, by J. S. Mill, Esq. ! (Phytol. i. p. 91). Through the kindness of Mr. Mill I possess the above example of this rare British species from the most easterly

* The park at Highclere is thirteen miles in circumference, and besides Sidon Hill, is overlooked by the still loftier eminence of Beacon Hill, just outside the park, and the highest culminating point in the county. I have no hypsometric data as yet for the mainland of Hants, but the elevation of Beacon Hill must verge very closely on, if it does not exceed, 1000 feet.

† The Box is said to grow profusely at a place called Checquers, in Bucks or Berks, I forget which, as well as the name of the proprietor; but from the silence of our botanists on the subject I infer that the tree is at most only naturalized about the house and grounds, and perhaps quite as dubiously so as at Highclere.

station for it in Britain, if not in Europe. I have repeatedly searched Sandown Bay in the hope of again finding this *Euphorbia* in greater quantity, and am willing to believe that with *Lathyrus maritimus*, which formerly inhabited the Bay, its disappearance may be only temporary, as expressed under the head of that plant in these Notes. In 1835 I collected noble specimens on Slapton Sands, near Star Cross, Devonshire. From its intense purple colour, small comparative size, and perfectly depressed growth, it may be overlooked on a casual glance for a fragment of sea-weed. It belongs to a section of the genus with opposite, stalked, oblique leaves, furnished with stipules, prostrate stems, and a rudimentary corolla to the pistillate flowers, mostly found within the tropics.

Euphorbia Helioscopia. A common weed in waste and cultivated ground, corn-fields, neglected gardens, amongst turnips, potatoes, &c., in autumn and later summer months; occasionally, too, in the spring.

——— *platyphylla*. In corn-fields, fallows, waste and cultivated ground, and by road-sides; far from an uncommon species in the Isle of Wight, very often occurring in great abundance in tillage lands as a rather troublesome weed, but not very constant in its stations, which on that account it would be useless to give, except in a general way. Rather frequent about Ryde, at Quarr and Fishbourne; wheat-field betwixt Prestwood and Smallbrook farms, and near Westbrook farm betwixt Ryde and Nettleston, and found remarkably fine and abundant in a corn-field by Beaper farm between Ryde and Brading, some of the stems being nearly a yard high, and much branched. About E. and W. Cowes, by no means unfrequent in corn-fields, clover-lays, &c. About Yarmouth, Ningwood, Shalcombe, Gatcombe, Thorley, and in most other parts of the island, often in the greatest plenty. About Colwell and Brading; Mr. W. D. Snooke, Fl. Vect. Perhaps not less general in mainland Hants, but I have not remarked it in that part of the county myself. Matterly farm, about four miles from Winchester, towards Alresford; Dr. Sibthorp (Bot. Guide). Selborne (the var. *E. stricta*, *E. B.*); Mr. Yalden, *Id.* This last form, the *E. stricta* of Smith (an Linn.?), is a mere immature or starved state of the plant with simple or very slightly branched stems, as it commonly appears in the earlier part of the summer, when it seldom exceeds a foot or eighteen inches in height. The stem is very commonly furnished with a pair of opposite, ascending branches, springing from its very base, and far shorter than itself, but as the season advances these lateral stems or branches attain nearly the height of the middle or principal one, become, like that, much expanded at top

into broad umbels, and the entire plant acquires a much larger size (often three feet in height), and a beautiful coral red colour. The *E. stricta* of Koch, found in the west of England, certainly comes very close to the present species in all its characters, as appears from excellent specimens I possess through the kindness of W. H. Purchas, Esq., of Ross, and from the living plant, which I had some few years ago in the garden, from Mr. Borrer, but have since lost. From what has been just said, it will be evident, I think, that these two species do not differ in size; the examples of *E. platyphylla* usually found in herbaria being mostly small entire specimens, as seen in corn-fields early in the summer, may have given rise to the opinion of its being a smaller plant than *E. stricta* of Koch. The leaves in every specimen of *E. platyphylla* that I have seen, like those of *E. stricta*, are more or less narrowed above their clasping and cordate base, giving to the outline of the leaf an elongate-oblong, somewhat obovate-oblong, strap or tongue-shaped form, equally conspicuous in each species. It is remarkable that Koch, who considers the Monmouthshire *E. stricta* as the Linnean species of that name, actually cites the E. B. figure of our *E. platyphylla* (the var. *stricta*, *E. stricta*, *Sm.*) as the true plant of Linnaeus,* showing clearly how very closely the two are allied in botanical character and aspect, although it must be owned that the figure in E. B. is so defective from the miserably starved, or perhaps very young state of the specimen, that it might stand for either one or the other. *E. platyphylla* and *E. stricta* are probably really distinct, as their distribution and localities are different, the former being an agrestal and viatical, the latter a sylvestral species, each preserving its proper habitudes in this country and on the continent.

Euphorbia amygdaloides. A beautiful and most abundant species in woods, thickets, hedges, the shady borders of fields, and bushy places throughout the county and Isle of Wight. The earliest of all our Spurges, in very mild seasons beginning to flower, though sparingly, in January or February, and retaining its bright red shoots fresh through the winter, yet it is never in general and complete flower here till early in April.

OBS.—*E. Cyparissias* is plentifully naturalized in the shrubbery at Northwood Park, W. Cowes, the residence of the late George Henry Ward, Esq.; Miss G. E. Kilderbee !!! The Rev. G. E. Smith recollects gathering a *Euphorbia* with hairy fruit some years ago in a

* Koch, Synop. Fl. Germ. et Helv. edit. secunda, p. 723.

wood along the shore west of Ryde, which, as far as his memory serves, agreed with specimens of *E. pilosa*, *L.*, since seen by him at Oxford. Nothing of the kind has fallen in my way there yet.

Euphorbia Paralias. On sandy or pebbly sea-shores. In vast profusion along the wide beach of the south shore of Hayling Island, more particularly amongst the drift sand towards its western extremity, where this elegant species occurs for nearly a mile over some hundreds of acres, springing up by tens and hundreds of thousands, and forming bush-like clumps or tufts on the otherwise bare sand. First communicated to me by the Rev. G. E. Smith, and subsequently by Miss G. E. Kilderbee !!! Not known to me on any other part of the Hampshire coast, although we have other sandy tracts, but more limited in extent, both in the Isle of Wight and on the mainland, apparently as well fitted for its production. It is indeed remarkable that the seeds of this *Euphorbia* should not have been long since wafted across from Hayling Island to the almost opposite sandy spit or neck of land that nearly closes the mouth of Brading harbour, and which is barely seven miles S.W. from the nearest point of Hayling beach, where the plant most abounds. A similar sandy spit occurs at Norton, on the Freshwater side of Yarmouth harbour, and like that below St. Helens, is very similar in its vegetation to the Hayling beach, but does not produce the sea spurge. Desirous to know whether or not the absence of the *Euphorbia* in these stations, apparently so perfectly adapted to it, were merely accidental and unconnected with climatic or other causes hostile to its spontaneous growth, I last year planted roots and scattered seeds in the loose sand at each place, a few of which have vegetated, and should no natural obstacles exist to prevent its spreading, it is probable the *Euphorbia* will establish itself abundantly on these sandy spits, and become completely naturalized to this island. To prevent, therefore, its being announced as a new station for the species, or taken for an aboriginal Isle-of-Wight plant, I have put the fact on record, that before the year of grace, 1848, *Euphorbia Paralias* was an utter stranger on Vectian ground, and should it spread and become plentiful at these two opposite ends of the island, I hope by this free confession and announcement to stand acquitted of all intention to mislead or deceive others into the belief of its being a native. I likewise trust for the experiment's sake to be pardoned this attempt to naturalize so beautiful a plant on the shores of the Solent, by those who, with myself, hold such assistance given to Nature in flinging abroad her productions, a disservice done to Botany and its votaries, and as a general practice, highly re-

prehensible. The Rev. Hugh Davies, in his 'Welsh Botanology,' which uncouth word stands for the Flora of Anglesey, not of the principality at large, mentions a form of the plant as growing on the sandy south-west coast of that island, which, from his description, I supposed might be *E. pitynsa*, a species nearly allied to the present, but inhabiting the south of Europe, one of the characters of which is to have, like Davies's plant, the lower stem-leaves reflexed. Mr. Borrer, to whom I mentioned my suspicion, in which I was the more confirmed by Davies's own doubts of its being only *E. Paralias*, kindly examined the plant in its locality, and satisfied me by a specimen from thence of its being merely a form of the latter.

Euphorbia portlandica. On rocks and cliffs by the sea, as also on the sandy or pebbly beach itself; occasionally, too, in woods and thickets along the shore; very local. Plentiful on the steep chalk banks and cliffs at the upper, or N.E. end of Sandown Bay, the only Isle-of-Wight station known to me, and where it seems to have been first observed by Mr. W. D. Snooke, in his little work, the 'Flora Vectiana,' referred to in a former part of these Notes. Very abundant and luxuriant on the wide, flat beach of Stokes Bay, near Gosport, formed by the recession of the sea, and interesting from the number of rather rare plants it produces, amongst which may be mentioned this *Euphorbia*, *Cochlearia danica*, *Silene nutans*, *Linaria repens* and *Teesdalia nudicaulis*. The flowering time of this very pretty, almost shrubby spurge, is very erroneously given in our books, not excepting Babington's Manual, in which so much has been done in the way of correcting these and other mistakes of his predecessors. The Portland Spurge begins to flower early in May, and continues in bloom till August or September. At Torquay I have remarked it growing in the borders of thickets by the side of the Tor Abbey walks, but in this county it shows no tendency to become a wood plant.

———— *Peplus*. Common in waste and cultivated ground; particularly in weedy, ill-kept gardens in autumn all over the county. I have remarked a monstrous form, in which some of the ovaries were converted into a long, horn-shaped excrescence, surmounted by the styles.

———— *exigua*. In waste and cultivated ground, fallows, and especially in corn-fields; most abundantly, both on chalk and sand, over the whole county and island.

†———— *Lathyris*. Here and there in waste and garden ground, amongst potatoes, by road-sides, and along hedges near houses, very rarely in newly cut copses; doubtfully indigenous in any part of the

county, and certainly not so to the Isle of Wight. On Ryde Dover formerly. Seen at Binstead, Cowes, St. Lawrence, and elsewhere in the island, but in no fixed stations. Frequent in cottage gardens, and when once introduced not easily got rid of. Said to drive away moles, and the large, unripe capsules have been sometimes ignorantly pickled for capers, hence the common name of Caper-bush in Hants, which we may further suppose to have been appropriately given it from the saltatory movements the condiment so prepared would be apt to excite in such as partook of it. Certes we may imagine at the least, such pungent sauce to elicit a reply like that of the first lieutenant, on the soup at the captain's table, into which the contents of a whole bottle of cayenne had accidentally been transferred, who, when the necessity for patient endurance which the etiquette of the service imposed, was removed by his superior asking if he did not find the soup a little too highly seasoned, abruptly made answer, "smart eating, certainly, Sir, smart eating!" The Caper Spurge is said to be truly wild in a few localities, as at Ufton, near Reading, springing up in dry, stony thickets for a year or two after they have been cut, and I have myself seen it perfectly naturalized, if not indigenous, on that curious rocky islet, the Steep Holmes, in the Severn. In this county Dr. Macreight gives "woods at Selborne," as a station for *E. Lathyris*, in his 'Manual of British Botany,' but in a communication with which that gentleman favoured me in reply to an application I made to him for particulars, he expresses an opinion that the species is not indigenous to the station in question.

Mercurialis perennis. In woods, thickets, copses, on hedge-banks and in moist, shady, bushy places; most abundantly in all parts of the county and Isle of Wight. One of the most social of our native vegetables, often covering the surface of the ground in our damp woods to the utter exclusion of all other plants; it is also remarkable as being one of the earliest herbs to appear above ground in the spring, and the latest to die down on the approach of winter. In mild seasons it may be found in flower at the close of February, before its leaves are unfolded,* and numbers of the stems survive and retain their leaves tolerably green into the second year. Both our native species turn partially blue in drying, and perhaps contain indigo, or some analogous principle, which, after vitality is extinguished in the plant, absorbs oxygen, and becomes apparent by precipitation in the

* In 1843 I gathered *M. perennis* in flower in this island as early as the 9th of February. It is always fully in bloom here in March, continuing to flower on into May.

vegetable tissue, yet the attempts of a chemist at Glasgow to obtain a permanent colouring matter or dye stuff from this plant have failed of success. Some species of the genus, as *M. tomentosa*, are devoid of colouring matter. The Miss Sibleys, of Hall Place, West Meon, inform me that cows greedily devour the herbage of *M. perennis* when they can get at it, without injury to themselves, though reputed extremely poisonous to cattle and the human species. See Gardiner's 'Flora of Forfarshire,' p. 160. The Rev. Hugh Davies has seen this species perfectly monœcious, like the following (Welsh Botan. p. 95).

Mercurialis annua. In waste and cultivated places about towns, on banks and along suburban fences, and particularly in kitchen-garden ground. Formerly not very uncommon in the Isle of Wight, but of late years it has become exceedingly scarce here through the progress of building effecting its extirpation.* In Ray's time it grew plenti-

* Although given without an expression or mark of doubt as a genuine native by those authors most inclined to dispute the indigenous origin of many a British plant, I am strongly disposed to believe the annual Mercury more deserving of the asterisk than a large majority of species to which that symbol of doubt has been affixed. In the time of Gerarde and Parkinson it was evidently, from their accounts, much rarer and more local than at present, and would seem chiefly to have grown in Kent and on some parts of the south coast. Such distant localities as Rochester and Romney would hardly have been cited as stations by these old authors, had the species been the abundant weed it has since become in so many parts of the metropolitan district. Ray (Hist. Plant. i. p. 163) makes it rare by implication in his own day, for although he says of it "reperitur in hortis olitoriiis, vinetis, aliisque locis humentibus ac umbrosis;" it is evident by the word *vinctis* he is speaking of its usual places of growth, without reference to any country in particular, and it is remarkable that he gives as an English station the shore of the very place from which I am writing; "In maris littore propè Ryde Vectis insulæ oppidulum spontè et copiosà provenit." Had he been acquainted with habitats nearer his own part of England, he would surely have mentioned them in preference to, or at least in conjunction with, one so remote as the coast of the Isle of Wight. Besides that it has all the appearance of an introduced species, the very ancient name of French Mercury seems to point at its foreign extraction, although I would by no means insist much on this head apart from the other considerations just urged, knowing how fallacious are inferences deduced from popular names alone. The most of us have heard that so late as the reign of Henry the Eighth this country was chiefly supplied with esculent vegetables from Flanders: is it not likely that the annual Mercury may have migrated from the continent into England when kitchen-gardens first began to be general, spreading with the progress of horticulture from our south-eastern coast, where it would naturally be first established, more and more widely through the land? In further confirmation of my views on this subject, I will now quote the following curious passages from Turner's Herbal, the black-letter edition of Cologne, 1568, the description illustrated by two excellent woodcuts of *M. annua*, pistillate and staminate. It is to be observed

fully on the shore at Ryde, (Syn. edit. Dillen. p. 139, see note below), doubtless on what is now called the Dover, and where it lingered in defiance of the changes that have converted that waste into a part of this populous town, till within a very few years back, having myself gathered it there in tolerable plenty on one spot, but it has now quite disappeared from every part of this neighbourhood. Mr. Wm. W. Saunders noticed it, as he believes, some years ago not unfrequently about the town, and I have certainly gathered it in other places besides the Dover, although it has always seemed to me very uncommon at Ryde, and I believe it is at present all but, if not quite, extinct

that Turner makes no mention of *M. perennis* under the head of Mercury (Herb. part 2nd, p. 55). After a short account of the plant he thus proceeds: "By thys description it is playn that our forefathers have erred in England which hitherto in the most parte of all England have used another herbe in the stede of the ryghte Mercury. Therfore as many as had leuer ete whete than acornes, let them use no more theyr old Mercury, but thys Mercury (*M. annua*) whych Dioscorides describeth. The ryght Mercury groweth comon in the fields and wynyardes of Germany without any setting or sowyng. And it beginneth now to be knowen in London, and in Gentle mennis places not far from London. I neuer saw it grow more plentuously in all my lyfe than about Wormes in Germany." What the false Mercury may be which Turner alludes to above is not clear, it can hardly be *M. perennis*, if all that is said of its poisonous properties be true, since it would seem to have been used instead of *M. annua* in "sallettes and mouses" (*Gemüse*, Germ.). It was most likely *Chenopodium Bonus Henricus*, one of the old names for which was English Mercury, a plant much used by our forefathers in lieu of greens or spinage. It is observable that Turner does not apply the name of French Mercury to *M. annua*, which was probably imposed on it at a later period, when it was better known and more plentiful than when he wrote. I should infer from Turner's words given above, that the Annual Mercury was at first purposely grown as a pot-herb, which those of Gerarde (em. p. 332) seem to confirm, where he says, "French Mercury is sown in kitchen gardens among pot-herbs. I found it under the dropping of the Bishop's house at Rochester; from whence I brought a plant or two into my garden, since which time I cannot rid my garden from it." It seems to have been more used medicinally than dietetically, and to have soon gone out of use as a pot-herb, being scarcely mentioned as such by Gerarde and Parkinson. I think I have adduced sufficient evidence to show that *M. annua* was once a much rarer plant in this country than at present, and that the presumption amounts almost to a demonstration of its having been imported originally from the continent as a garden production. I may here remark that *Impatiens Noli-me-tangere* was regarded as a kind of *Mercurialis* by these old herbalists, and which Parkinson tells us was found in his time "by an industrious Gentleman and Herbalist Mr. George Bowles, by the shadie wood sides of the mountains and their vallyes in Wales," a fact which, as it is confirmed by botanists of the present day, sufficiently refutes the unreasonable doubt sought to be attached to this widely-spread European plant as a genuine, indisputable native.

here. In a garden in George Street, along with *Nicandra physaloides*, but sparingly, October 3rd, 1844, the last specimen seen. Field at Gurnet Bay, near Gurnet farm, 1838. At Ventnor; Dr. Martin!!! (Still here and there in garden ground, but less frequent than it was a few years back). Abundant in Northwood Park, amongst potatoes; Miss G. E. Kilderbee!!! Betwixt Godshill and Sandford, 1848; Mr. Albert Hamborough. At Steephill; *Id.*, 1848!!! Far more frequent and abundant in mainland Hants, where it cannot be accounted a rare species. In several parts of Portsea Island, at Frotton, and abundantly on waste lots (formerly garden ground) about half a mile inland from Southsea Castle, at the back of Southsea Common, along with *Chenopodium murale*, the purple variety of *Datura Stramonium* (*D. Tatula*, *L.*), and *Solanum nigrum* with flowers rather larger than usual; November 5th, 1849. Frequent at Southampton, and profusely in and around Winchester, where it is a vile weed in kitchen-garden ground, choking the soil and spreading about the fences and hedges. I have seen it at Emsworth, Porchester, Wicor farm, near Fareham, and at Andover. Petersfield; Mr. Pamplin!!! Church Lane, Fareham; Mr. W. L. Notcutt: and doubtless in most other parts of the county. Var. β . *ambigua* (*M. ambigua*, *L. fil.*): staminate and pistillate flowers in sessile axillary clusters. With the common form, but rarely. A troublesome weed for many years past in the kitchen garden at St. John's, near Ryde, where it may be seen occasionally passing, more or less distinctly, into the usual diœcious and spicate form of inflorescence. As found at Ryde, this variety differs from the usual state of the species in its more ovate, less lanceolate leaves, of a paler green, with less distinct veins, and more remotely serrated, according well in this respect with the figure and description of the younger Linnæus, in the first decade of his '*Plantarum rariorum Horti Upsaliensis*,' tab. 8. The flowers stand in small, roundish, axillary clusters of eight or ten together, sometimes consisting entirely of pistillate or staminate blossoms, more usually intermixed, the latter elevated above the former on rather long peduncles. This arrangement is such as we find in *Buxus*, *Euphorbia* and other genera of the order (*Euphorbiacæ*) naturally diœcious. I found in May, 1839, at Hermit's Tower, Winchester, *M. annua* exhibiting its usual diœcious character, but with the flowers of both sexes in axillary clusters, sessile, or nearly so, as in the monœcious variety β . *ambigua*.

Parietaria officinalis. On old walls, churches, ruins, and amongst rubbish; also on hedge-banks, rocks and sea-cliffs; very frequent

over the county and Isle of Wight. Amongst the ruins of Quarr Abbey. Walls of Carisbrook Castle, plentifully. Common in most of the churchyards of the island, as those of Brading, Brixton, Carisbrook, Northwood, Newchurch, Freshwater, &c. Plentiful at the base of the chalk cliffs in Scratchell's Bay, and abundant on the down along the edge of the cliffs from thence towards Freshwater Gate at intervals. Profusely on Rosehall Green, Main Bench. Hedge-banks by the road-side between Carisbrook and Buccombe, on the way to Shorwell, in several places. Hedge-banks by Blackbridge, Freshwater, and near the farm (Old Warren House) at Alum Bay. Not less general in mainland Hants. Most profuse and luxuriant on the walls of Porchester Castle, Beaulieu Abbey, Winton and Southampton town walls, and many another venerable relic of feudal or ecclesiastical magnificence,

“Where the mouldering walls are seen
Hung with pellitory green.”—CLARE.

I am not at present prepared to say which of the two species of *Parietaria* admitted as British into the Manual, is the commoner in Hants, or whether we possess both, as I am inclined to believe we do. This genus connects *Urticaceæ* with *Euphorbiaceæ* through *Acalypha*, belonging to the latter order, some species of which, as *A. virginica*, have considerable resemblance to a *Parietaria*, in aspect as well as structure.

Urtica pilulifera. Under walls, amongst rubbish, and in waste places about towns; very rare, and not seen by myself in Hants. Portsmouth; the Rev. G. E. Smith in New Bot. Guide. It was rather at Gosport that my worthy friend met with this species, now a good many years since; the exact locality he cannot recal, but believes it to have been somewhere on the way from Gosport to Gomer Pond, perhaps at Alverstoke or Privet, but if so, it still eludes my endeavours to rediscover it at all three places. Hayling Island, according to the catalogue of plants in the Hayling Guide, but the wording leaves it uncertain whether the intended station be not at Emsworth, part of which town is in Sussex. The list of Hayling plants in the work just mentioned is meagre enough, but contains no unlikely species calculated to throw suspicion on the author's botanical knowledge, as too often happens in local catalogues, and as the Roman nettle unquestionably occurred at Gosport, it may equally inhabit the adjacent parts of the county. This species is commonly looked upon by

recent British botanists as an introduced plant: I am disposed to think it as truly wild on the Suffolk coast, as in the south of Europe, where, although abundant, I have never seen it, except in or about towns, as with us. At Gorleston by Yarmouth it seemed to me as much at home as at Montpellier, though less plentiful, but the progress of building has done much to diminish its frequency in that English station. *U. Dodartii* I have every reason for believing a mere variety of *U. pilulifera*, with entire, or partially entire leaves.

Urtica urens. Very common in waste and cultivated places, by road-sides and on dunghills, but less general than the following, and more confined to the neighbourhood of habitations. I remarked it as unusually frequent in west Hants, about Ringwood and Christchurch, last summer.

——— *dioica*. In waste ground, along hedges, in woods, lanes, on weedy banks, and by road-sides; everywhere abundant. The var. β . *angustifolia* (Wim. and Grab.), with ovate-lanceolate leaves rounded at base, I have remarked in this island occasionally.

Humulus Lupulus. In moist or boggy woods, thickets, hedges, banks of streams and bushy places, a truly indigenous plant, universally and abundantly distributed over the county. As common as brambles in very many parts of the Isle of Wight, particularly in low, damp thickets, which are often impenetrably matted with its interlacing stems, or it may be seen running up the slender trunks of alders and salallows in our boggy copses, in such abundance as to resemble natural hop-gardens, and in these situations has a very picturesque effect. Never grown in this island for its strobiles, which in the wild plant yield excellent hops, and are sometimes gathered by the country people in lieu of the more expensive produce of Kent and Surrey. The hop is cultivated for commercial purposes in a very small part only of Hants, in the north-eastern portion of the county, along the Surrey border, as Alton, Selborne, &c., yet is equally plentiful where its culture is unknown; I have never failed seeing it in every district I have yet visited. Mr. H. C. Watson, in his valuable work the 'Cybele Britannica,' where, on the subject of the indigenous origin of the plants composing our flora, he has, I cannot help thinking, suffered his own independent and inquiring mind to be somewhat biassed by the antiquated and crude speculations of others, puts the following string of queries under the head of *Humulus Lupulus* (Cyb. Brit. ii. p. 372). "Has the hop been introduced into Britain by human agency, or is it an aboriginal native? If native, how much of its present area, how many of its localities, should be deemed natural? and

how much of that area, how many of those localities, may be considered artificial? Who can undertake to answer these questions with certainty?" The two middle or intermediate queries are soon disposed of as transcending human ability to resolve. The challenge contained in the last question I will venture to accept, and undertake to answer the inquiry with as much confidence and just as much (but not more) certainty, as if the spontaneous origin of the oak were the subject of debate. Propositions like these are not mathematical problems, capable of rigid, undeniable demonstration; the weight of probability must here be allowed to decide where proof of any more exact kind is impossible. I need not recapitulate what I have said on the subject of the Hop in a former part of these Notes (Phytol. iii. p. 382), to which I beg to refer the reader, I will only add a few observations, and cite a few authorities in support of the opinion there expressed. It would be wasting time and trouble to be at the pains of refuting the puerile and inconclusive objection against the indigenous origin of the Hop in Britain by such as come armed with the traditionary distich

"Turkeys, carp, hops, pickerel and beer
Came into England all in one year."

First, because like the cherries of Lucullus, it was unquestionably the improved and cultivated produce of the hop-gardens of Flanders that is to be understood, and not the wild bines or the burrs, which might have been had from many a hedge and thicket, as I shall show anon; secondly, because there is a suspicious appearance of poetic licence, or contempt for plain, matter-of-fact historical truth, about the gastro-nomic bard, when he enumerates beer as one of the good things that flowed in upon us during that memorable epoch, it being well known that ale or beer was the national beverage long before hops were employed in its fabrication. Turner, who published his *Herbal* in 1568, in his rather long account of "Hoppes," never once alludes to them as an ingredient in malt liquors, but speaks only of their virtues from the writings of others, nor does he drop a word that could lead to the conclusion that they were cultivated in England at that period, yet he says, "They grow also wylde in many places both of England and of Germany," (*Herb.* part 2nd, p. 43, Cologne edit. black letter). Gerard and Parkinson both speak of the wild hop in England, but as they refer also to the plant as cultivated for the brewer, I suppose their testimony will be objected to on the ground that the hop had become wild from the gardens. Neither in the *Synopsis*, nor in his

opus magnum, the 'Historia Plantarum,' does Ray intimate the slightest suspicion of hops not being indigenous to this country, and he was one by no means hasty in admitting dubious species to the rights of natives. Whence, then, the disposition of some moderns to regard the hop as a naturalized foreigner with us? I hope on some better pretext than the mere follow-my-leader principle, because Sir J. E. Smith says in 'English Flora' (vol. iv. p. 241), "I have sometimes suspected Hops not to be indigenous, which was also the opinion of Lightfoot with regard to Scotland." We are not bound, nor do I think we ought to attach importance to any man's mere suspicions, unless he condescends to show cause for entertaining them. That the hop may not be indigenous to Scotland I think highly probable, for as I have before observed, many plants fall far short in the British Isles of the latitude they attain on the continent, and the hop *may* be one of these. The striking difference observable in the variety and nature of the species composing the floras of Hants and Forfar, for example,* is much greater than is due to mere diminution of the mean annual or summer temperatures, or even to the higher latitude of the Scottish county. The true cause of the rapid failure of so large a number of south of England plants before reaching the Scottish parallels, is to be sought in the greater humidity and cloudiness of the climate, and comparative deficiency of direct solar light, so essential to the spontaneous growth of plants, although in general but little affecting their health and luxuriance under cultivation. An atmosphere often at the point of aqueous saturation, deposits a portion of its moisture when in that condition upon trifling depressions of temperature, and the vapour, now rendered visible, by impairing the transparency of the air, intercepts, even in the absence of clouds, much of the sun's light and heat, which in a clearer and drier sky would exert its direct influence on vegetation. If the heat of our summer be not very much above that of the same season in the north, it commences earlier, and is protracted into an autumn of longer duration, dryness and serenity, better able to ripen the vegetable tissues, and bring the seeds of plants to maturity. It is from our proximity to the continent, and the greater breadth of the mainland of England along its southern coast than elsewhere, that our atmosphere is less loaded with clouds and vapour than is that over the narrow and deeply indented promontory of North Britain, environed by a wide expanse of water

* I select Forfarshire as being the Scottish county of which, through the labours of Don and Gardiner, we possess the fullest published flora.

on three sides, without any adjacent land surface to maintain heat by terrestrial radiation, or to arrest the deposition of moisture from the Atlantic, much of which is precipitated, before it can reach Hampshire, upon the peninsular counties of Cornwall and Devon. Hence the amount of direct solar radiation, so active an agent in developing a varied and vigorous vegetation, is oftener and more continuously exerted here than in the north, proving more than equivalent in energy to the power of a diffuse light protracted through days considerably exceeding our own in length at the season in question. These conditions of atmospheric dryness and unimpeded solar action, characterize the countries of continental Europe in a still greater degree, and hold good into latitudes higher than those of any part of Britain, enabling plants that are indifferent to the increased rigour of the winters, to advance far to the northward of the parallels they can attain in our insular climate, where their progress towards the poles is much sooner arrested by the failure of the conditions above mentioned. To these causes, more than to the very moderate increased heat of the summers, must be attributed the difference we find in the amount of species betwixt the floras of Edinburgh and Copenhagen; places having almost exactly the same latitude,* but enjoying, the one an ultra-insular, cloudy and equable climate, the other an all but continental, somewhat extreme climate, the greater dryness and sunniness of which gives to the Danish metropolitan flora a much more varied aspect. The same comparative poverty of species, though much less evident, because latitude is not concerned in producing the change, is manifested in the flora of Wales and the west of England over that of the eastern counties, and on crossing St. George's Channel, the total absence or great rarity of plants of common or abundant occurrence on the English side, is a striking feature in the flora of the sister island. In each case the cause is the same, diminished solar influence from impeded radiation and increased humidity acting as a bar to the proper hardening of the vegetable fibres. We must all of us have remarked that those localities are not the richest in species where the vegetation is most luxuriant; indeed, that the most unpromising spots to the eye, barren, sandy fields and wastes, often yield an ampler harvest than the merry green wood conceals beneath its leafy bowers.

* The Edinburgh Catalogue of Plants gives a most unfaithful picture of the real or indigenous, as well as the derived or naturalized flora of that district, embracing, as it does, a multitude of imperfectly established and even planted species, as *Staphylea*, &c.

So Humboldt, I think, observes that the damp shaded forests of the Upper Amazons and Orinoco rivers, where frequent rains and a clouded sky maintain a majestic arboreous vegetation, are far poorer in the number of species they produce than the open burnt-up *campos* of Brazil, covered with an infinite variety of low shrubby plants, with a host of herbaceous ones scarcely less numerous. The astonishing number of plants that crowd the arid shores of the Mediterranean, where the great hygrometric dryness forbids the growth of the major part of our deciduous thin-leaved forest trees, and the landscape is scantily clothed with triste thickets of evergreen and cork oaks (*Quercus Ilex* and *Q. Suber*), wild olives (*Olea sylvestris*), and pines (*Pinus pinea* and *P. halepensis*), is perhaps not much inferior to the amount of species on an equal area between the tropics, though differing in kind, and owes its existence to the uninterrupted action of solar radiation through the long dry summer of that inland basin. Experience fully proves that a wet and consequently cloudy climate, however mild and agreeable, sustains a flora distinguished usually by great luxuriance, but by as remarkable a paucity of species, which, however, make some amends for their fewness by their beauty or peculiarity. New Zealand, Ireland and southern Patagonia furnish striking illustrations of this fact, in the comparative poverty of their ultra-oceanic but handsome and peculiar phanerogamic floras. Mr. Watson found northern (British) forms constituting a large proportion of the Azorian vegetation, in a climate warm enough to ripen the orange, but too cloudy and humid for the great mass of Portuguese and Spanish plants, requiring a larger share of direct solar light to flourish spontaneously.* Enough has been said to show why so

* The climate of this part of England along the south coast combines the advantages of an insular and continental position. In summer we enjoy the warmth radiated from the adjacent continent, and from the broad expanse of mainland to the north of us, which ensures us considerable hygrometric dryness, and more sunshine than falls to the lot of the northern counties, where the land narrows betwixt wider waters, and losing the advantages of terrestrial radiation, becomes more completely oceanic. In winter, on the other hand, our southerly position and the warm vapours from the Channel generate a tolerably mild temperature, and the great prevalence of south-westerly winds renders that season more rainy than frosty; but except on and near the coast, the mean heat of winter in Hants is little, if at all, higher than in the north of England or Scotland, although that season is of shorter duration and preceded by a longer and drier autumn, and followed by an earlier, though often equally cold spring, the east winds at that period blowing almost as constantly and keenly as on any part of the coast west of the Foreland Point, and constituting here in the months of March, April, and too often in May, the "blackthorn winter," our truest

many species common in the south and south-east of England fail to reach the northern counties or Scotland, and even become rare or extinct in the west of England and Ireland on the same parallel; and that, therefore, because a plant does not evince itself indubitably wild in the northern, western and even midland parts of Britain, we cannot safely predicate the same of it in the southern and eastern counties, but must be guided by what we see of its condition there in settling the question of spontaneity, without allowing our opinion to

season of that name, as till then we have seldom any cold worth speaking of, and snow has been for several years of very rare occurrence. But the cold winds of spring are not so injurious to vegetation here as farther north, because not accompanied by so much moisture, and because the longer and warmer summer ripens the wood of tender trees and shrubs, enabling them to resist their ungenial influence. Hence we see, in the Isle of Wight and along the opposite coast of Hants, the myrtle and the fig luxuriant as standards in the gardens even of the cottagers, the former ripening its berries abundantly, and the latter growing to trees of great stature and girth, and producing most abundant crops of large and luscious fruit every season. Noble fig trees, as large as most I have seen in Italy, and bearing figs fully equal in size, but perhaps somewhat less saccharine in general, to those grown abroad, may be seen about Portsmouth and elsewhere along the coast, as well as in this island. St. John's garden, near Ryde, is full of old standard fig trees, most prolific bearers, that yield a good return to the proprietor yearly at the fig season (August, September) for the trouble of gathering, as this tree needs no pruning or attention, and indeed thrives best when most neglected. I have never known the fig suffer from our severest winters; even in the extraordinary one of 1838-9 the trees here escaped without the slightest injury, but at any considerable distance inland the ends of the branches are liable to suffer from the spring frosts, and the protection of a wall becomes advisable to ensure a crop of fruit. The varieties of the fig grown at Ryde are the brown Ischia, purple Ischia, white Genoa, and a large, green, late fig, the name of which I cannot learn, and which often fails to ripen in this climate. Figs of three quarters of a pound weight have been gathered at St. John's, and fruit weighing half a pound is not uncommon, but the average is under this last amount. Although abundantly cultivated all over the county, in every garden and against almost every farm-house and cottage, the vine succeeds but indifferently in the Isle of Wight and along the coast line in ordinary years, as, although clusters of large size are frequently and copiously produced, they do not arrive at proper maturity before the damp weather of autumn sets in and spoils the grapes. More inland, however, the vine comes oftener to maturity, and even in this island well-ripened and heavy crops of grapes are procured at intervals of about three or four years at furthest. This last autumn, I remarked the vines in most places along the south coast from Arundel westward to Christchurch, loaded with fine well-grown clusters of black and white grapes, which, although of full size and well coloured, in few instances had their proper flavour. The vine succeeds better and more constantly in our dry eastern counties, at some distance from the sea, as in Kent, Cambridgeshire and the western parts of Suffolk.

be warped by prior and partial observations (Phytol. iii. 381). If there is any principle on which the exclusionists take their stand, it seems to be that of cultivation : they appear to hold it as almost an established axiom, that no plant in general and extensive cultivation for economic or ornamental uses can be free from well-founded suspicion of foreign descent,—such at least is the only conclusion I am able to arrive at in attempting to discover the *reasons* for so much doubt and demur on the side of our British authorities, when the indigenous origin of our plants comes to be mooted. I much wish that some one or more of these doubting gentlemen would step forward and state their objections to the native origin of the Hop and the other disputed vegetables, on some broad intelligible basis, conducting the argument in the same philosophic and logical way as in the controversy between Daines Barrington and Dr. Ducarel on the right of the chestnut (*Castanea vesca*) to be held a native of England. The fact is, the Hop is more properly a plant of northern than of southern countries, the “*vitis septentrionalium*,” as it has been called by ancient authors, widely dispersed over the greater part of the temperate zone, being abundantly distributed in Europe, the north of Asia and America, and admitting of successful cultivation only in cool and even boreal latitudes.

† *Ulmus campestris*, Sm. &c. (non Linn.) Small-leaved Elm. In woods? and hedges; rare? Not found in the Isle of Wight. In various places about Lymington, and between Lymington and Boldre, also near Christchurch, both which places I find are given by Goodyer, in Gerarde (em. p. 1478), as the “narrow-leaved Elme,” with a very fair figure, and the following account: “This tree is like the other (the common Elme, *U. suberosa*), but much lesser and lower,” &c. &c. “This kinde I have seen growing but once, and that in the hedges by the highway, as I rode betweene Christchurch and Lymington in the New Forrest, in Hampshire, about the middle of September, 1624.” Goodyer, like myself, was a native of Hampshire, and botanized much in the county: his testimony confirms my belief that this elm, which is the true *U. campestris* of Smith’s ‘English Flora’ and the common elm of Norfolk, is a scarce species with us. I believe it to be a mere variety of *U. suberosa*, with no more appearance of being indigenous than that has.

†——— *suberosa*. In thickets, groves, borders of woods and fields, and especially in hedgerows; profusely abundant throughout the entire county and Isle of Wight; by far the most common hedgerow timber tree with us, not excepting the oak itself; yet it is, I think, very questionable if it be really indigenous. Never seen on the abo-

riginal forest ground, and seldom in woods or copses, excepting around their borders or a short distance within them, where it has crept from the enclosing hedge-fence, by means of the stools or suckers which this species so abundantly sends up, and which are the great instruments of its propagation, the seed being seldom perfected here, though plentifully enough produced. True it is, that it may sometimes be seen forming woods by itself, but such woods are for the most part narrow slips, or small angular patches of copse between hedgerows, called here *rews* (quasi rows), the elms in which were either originally planted, or have arisen from the stools of the trees standing in the hedges without. Such is the origin apparently of the Elm Close Copse, by St. John's, Ryde; Woods near Park farm, Nettlestone; Breaches Copse, behind Whitecliff Bay; Bush Rew, by Mottiston, betwixt the church and the sea; all of which are mainly composed of *U. suberosa*. Abundant along the crest of the rocky precipice overhanging Cowpit Cliff and Hatchet Close woods, where it has more of an indigenous aspect than I have anywhere seen it besides. The samara in all the specimens I have examined is perfectly smooth on the margin, or destitute of cilia. The Dutch elm (*U. major* of Smith) sometimes seen in parks and pleasure-grounds, seems to me a variety of *U. suberosa*, with larger leaves. The bark in old trees of *U. suberosa* is very deeply chapped or rifted, and in young ones the branches are winged with a corky excrescence, as in the field Maple (*Acer campestre*). A tree sometimes of enormous magnitude, of which in this island—not remarkable for the size of the timber it grows—many very fine specimens may be seen at Quarr, Nettlestone, &c.

Ulmus glabra. In woods, hedges and copses, occasionally; truly wild, but scarcely more, probably, than a variety of the following.

Var. α . Leaves lanceolate, smoothish and shining above, quite glabrous beneath. A large tree near the entrance of Centurion's Copse, by Brading.

Var. β . Branches upright; leaves ovato-lanceolate, evenly downy beneath, pubescent but not rough above, and somewhat shining. In Bloodstone Copse, near Ashley farm; plentiful.

Var. γ . (*latifolia*, Bab. Man.?). Leaves large, remarkably smooth and shining; branches drooping. In the farmyard of Apse, near Shanklin, a noble tree, but whether wild or planted I know not. The fruit smaller than in *U. montana*, nearly circular and cloven almost to the seed. This is, I have no doubt, the *U. glabra* γ . *latifolia* of Lind-

ley and Babington, which I have only seen with us in the above locality.

In α . the clusters of fruit are as dense, and the samara nearly as large, as in *U. montana*, of which they have the suborbicular form, and are, as in that, cloven to the seed. This was pronounced by the late Mr. E. Forster to belong to *U. glabra*, as he understood that species.

In β . the fruit is smaller and obovate, smooth and deeply cloven, as laid down for *U. glabra*; but the leaves by their greater breadth, and in configuration, approach nearer than in α . to *U. montana*, of which I am convinced both these varieties are but forms, with smaller, narrower and less scabrous leaves.

Ulmus montana (*U. campestris*, Linn., non Sm. et auct. Brit.). In woods, coppices and hedges throughout the county, but not very universally or abundantly, although truly indigenous. In several parts of the Isle of Wight, but not general. In Qnarr Copse, Binstead, not uncommon, and where there are some tolerably fine specimens. With *Tilia parvifolia* in a small wood betwixt Yarmouth and Tapnel. Common in Hatchet Close and Cowpit Cliff woods, near Shanklin. Rocky woods at Eastend, Luccombe. In Westridge Copse, near Shorwell, and in other parts of the island occasionally, mostly here and on the main in upland situations, and from being usually cut with the brush, not often to be seen of timber-like dimensions. Common in the high woods about Petersfield, at Stoner Hill, Bordean, Froxfield, &c. Woods at Selborne. About Hambledon, and betwixt Clanfield and East Meon. Hedges along the Winchester road, near Whitway or Whiteway, a hamlet just outside of Highclere Park, and where, about a mile or less south of the village on the same road, I find a handsome tree, in the hedges, answering in some degree to the characters of *U. glabra*, except that the large, oblong, cuspidate leaves are considerably rough on the upper side; the branches are quite smooth and drooping, but the fruit I have not seen. Whether these trees are wild or planted I am unable to say, but I have no reason to suppose them not indigenous in that locality where *U. montana* is frequent and certainly native.

An inspection of the Linnean herbarium and careful comparison of the descriptions and synonyms of Swedish authors, had long led me to conclude, with Mr. Borrer, that our *U. montana* is the true *U. campestris* of Linneus, and assuredly not *U. suberosa* or its variety, with smaller leaves, to which the name *campestris* was given by Smith, and adopted by subsequent British authors. The very brief

character given in the 'Flora Suecica,' the best authority for Linnean species natives of Sweden, is insufficient to settle the point; nor does that of the 'Species Plantarum' assist us more, as being only a transcript from the former work; whilst the reference in the latter to the 'Hortus Cliffortianus,' together with the specimen in the Linnean herbarium, incontestably show that our *U. montana* in its typical form (the *U. folio latissimo scabro* of Tournefort) was what Linneus meant by his *U. campestris*, under which, however, he included as varieties our *U. glabra* and another, which may be intended for *U. suberosa* or some of its forms. It being evident from the 'Hortus Cliffortianus' that Linneus considered our Wych Elm (*U. montana*) as the typical state or primary form, α ., of his *U. campestris*, we must so consider it; for although Linneus seems to have thought all the remaining European elms, however different in aspect (*varietates longe plures hujus speciei distinctas*), as forming but one species, his having applied the name *campestris* primarily to a well-recognized and distinct elm, it ought not to be discarded, much less transferred, to another species (*U. campestris*, *Sm.*) not indigenous to Sweden. If this last must still be held distinct from *U. suberosa*, some other name should be substituted for its present one, and that of *campestris* restored to our Wych elm, α . being the true species so denominated by Linneus, and understood as such by Swedish botanists. The figure of *U. campestris*, *L.*, in *Fl. Danica*, tab. 632, bad as it is, unquestionably represents our *U. montana*,* which, with *U. effusa*, distinguished by its stalked flowers and ciliated samara, are the only species of elm found wild in the north of Europe. Wahlenberg cites the figure and synonym of *U. montana* in *E. B.* for *U. effusa*, in his 'Flora Suecica,' although the fruit in the former is not ciliated. It appears from the 'Manual' that the samara of *U. suberosa* is occasionally ciliated: may not this character be inconstant, and, if so, may not *U. montana* and *U. effusa* be varieties of a single species? No dependance can be placed in this genus on the number of the stamens, which varies from four or five to six and eight, according to the divisions of the perianth. Thus in *U. suberosa* I find four or five (usually but four); in *U. glabra* five, with an hexandrous flower intermixed occasionally; in *U. montana*, five to seven or eight. I have been at much pains to find

* The much superior figure of *U. campestris* in *Svensk Botanik*, i. t. 13, and which may well be accounted authority, is equally our *U. montana*, as is likewise the excellent plate of *U. campestris* in Guimpel and Hayne *Abbild. der Deutsch. Holtz-arten*, i. t. 27.

constant characters between our Hampshire elms, and I am glad to see that Mr. Babington coincides in the opinion I arrived at some years ago, that all our British species of this genus may without risk of error be reduced to two, as shown above—namely, *U. suberosa* and *U. montana* (*U. campestris*, *L.*)—the former with all its varieties marked by a disposition to emit suckers or stools from the root, and even from the trunk, to a considerable height from the ground, and by which it is mainly propagated, the seed, perhaps from this cause, seldom coming to perfection, but dropping whilst yet green, the bark in all the forms deeply cracked or rifted, and the younger branches often winged or corky. In *U. montana* and its varieties, *U. glabra* &c., the bark is smoother, and the tree produces few or no suckers, being increased by the fruit, which ripens perfectly. The late Mr. Knight, of Downton Castle, as I learn from Mr. Bentham, raised several of the supposed species of elm from the seed of one kind alone. An elm with erect or ascending branches, and fastigiate growth like a black poplar, very small, narrow, firm, subpersistent and shining leaves, grows about St. John's and at Brooklands, near Ryde, which I take to be the *U. stricta* (Cornish Elm) of Lindley, but is not indigenous, and I hold it to be a form of *U. suberosa* allied to Smith's *campestris*.

A remarkable fact in the natural history of the elm is the occasional partial or total suppression of the flowers at their season for appearing. In the spring of 1839, scarcely a tree could be found in bloom, either of *U. suberosa* or *montana*, in this island and elsewhere in England,* although the year before the branches were loaded with flowers, which were again tolerably profuse in 1840. The largest Wych Elm in Quarr Copse, standing amongst many free flowerers of its own species, although perfectly vigorous, has never shown any disposition to blossom since I have known it. The Wych Elm, like the Sycamore maple (*Acer Pseudo-platanus*), is far from attaining the gigantic proportions in this county it reaches more to the north, and in the west of England, the climate of the south-east being rather too warm and dry for both these trees to reach their highest perfection, but *U. suberosa* is in Hampshire and other southern counties the successful rival of the oak in girth, and commonly far surpasses it in altitude; the wood, though commonly made subservient to the coarser purposes of the wheelwright and undertaker, shows a good grain when

* As about London and in Essex, as I learned from the late Mr. E. Forster, and probably all over the kingdom.

polished and worked up into furniture. The White Elm of North America (*U. americana*) comes very near our Wych Elm in character, attains a greater bulk, and exceeds it in the graceful contour of its fine recurved branches, being in fact one of the most magnificent trees of that continent, and deserving much more attention from our arboriculturists than it has hitherto received. It is the pride of the beautiful village towns of western Massachusetts and Connecticut, such as Newhaven, Springfield and Northampton, above whose rural streets and gay tenements its huge massive trunks rise like magnificent columns, supporting a canopy of deepest shade and verdure. It would doubtless flourish as well with us in England as our *U. suberosa* in America, where, at Boston, are many fine specimens in and around that most English looking, thinking and speaking city.

The following list of Hampshire Willows must doubtless seem a very meagre one to those who have directed their attention to this, the most difficult and perplexing genus perhaps in the whole range of botany, not excepting the Brambles and their graceful first-cousins the Roses. Some years ago I set to work *con amore* to collect and describe such of the willows of this island as looked *really* indigenous, eschewing all acquaintance with the pliant denizens of osier grounds,* which custom has strangely permitted to pass as habitats for the species of this genus, with about as much propriety as if the garden or shrubbery were held to be genuine stations from whence to draw the materials for a British flora. Anticipating great trouble and little satisfaction in the execution of my task, I was not sorry to find Nature herself in a mood to lighten my labours and abridge their duration by giving me but scanty materials to work upon, yet somewhat chagrined at her parsimony in withholding from the Vectian flora the more beautiful of the willow tribe, leaving us little else than the comparatively worthless and uninteresting family of sallows to call truly our own. For the mainland section of the county I have no additional species to record on personal observation, though many more, real or fictitious, must be supposed to exist in so well watered and well wooded a region as Hampshire. This deficiency I shall endeavour to make up in future, which before my attention was turned to the

* The term "withy bed" sometimes made use of by me is not always synonymous with "osier bed," "willow plot," "willow ground," implying a piece of land *planted* with osiers for the basket-makers, but simply a boggy tract covered with willows (usually of the sallow tribe) of spontaneous growth, of which we have many in the Isle of Wight, occupying the little valleys or hollows between the hills, and filled with such truly native kinds as *S. caprea*, *aquatica*, *aurita*, &c.

botany of the larger section of the county I had no means of effecting. I am convinced that hybridity is at the root of a vast deal of the difficulty and obscurity that envelope the study of the willows. The peculiarly exposed position of the ovaries in the pistillate catkins, the copiousness of the pollen in the staminate ones, and the facility with which the fertilizing globules are conveyed by bees from the latter to the former, or wafted thither by the wind, are strong arguments in favour of this hypothesis. In the subjoined list the range, frequency and localities of the species are mostly omitted, to avoid giving erroneous information where my knowledge on these points is as defective as that regarding the plants themselves.

The beautiful and fragrant *S. pentandra*, mostly confined to the north of England and Scotland, may nevertheless be found in Hants, as Mr. Watson is disposed to hold it indigenous to Surrey, and perhaps to Sussex and Devon.

Salix decipiens. Near Fontley Iron mills (Fareham); Mr. W. L. Notcutt!

— *fragilis.* Wet meadows, banks of streams, &c.; I believe frequent in the Isle of Wight. Some very large trees by a pool in a pasture field near Nunwell answered to the description of *S. Russelliana*, but of this, having seen only staminate plants, I am not well assured. Is it really distinct from *S. fragilis*?

— *alba.* Very common in a planted state along ditches in moist meadows, &c.; less so in its natural localities of wet woods, pastures and sides of streams. A noble tree in many parts of the county and island. *γ. vitellina*, *S. vitellina*, *Auct. Anglican.* Wet thickets, &c., occasionally. Westridge, Ashe, Yaverland. Fontley (near Fareham); Mr. W. L. Notcutt.

— *triandra.* In wet thickets, by stream-sides, &c.; apparently native and not unfrequent in several parts of the island; more frequently still in a planted condition. The staminate plant is far more common here than the pistillate.

— *undulata.* Titchfield Bridge; Mr. W. L. Notcutt!

S. Helix and *purpurea* most likely exist in the county, but I have not seen any willow belonging to this section (*purpureæ*) wild in the Isle of Wight. Mr. Notcutt in his list of plants of the neighbourhood of Fareham (*Phytol.* ii. 212) gives *S. rubra* as growing at Titchfield Common.

— *viminalis.* In low swampy woods and thickets; not, I think, unfrequent in its wild state, though more usually seen in cultivation.

— *Smithiana.* Wet woods; rare? In a wet bushy part of the

wood nearly opposite the entrance gate to Roughborough farm, betwixt Ryde and Brading; Dr. Bell Salter!!! By the bridge that crosses the road near Shanklin Church, on the left hand side; *Id.* My only specimens of this are flowering ones of both sexes; the leaves I have not yet seen. I adopt this species as a native on Dr. Salter's authority, who has paid some attention to the willows in times past, and speaks with confidence on the correctness of the one before us.

Salix acuminata. In damp hedges and thickets, &c.; I believe not very uncommon in this island. In Northwood Park; Dr. Salter and Miss G. E. Kilderbee. In a low wet meadow nearly opposite Redhill farm, Appuldurcombe, 1843. I have only seen the pistillate plant of this species here as yet. An apparently well marked willow. Between the tunnel and Fontley; Mr. W. L. Notcutt.

— *cinerea.* Very frequent, at least its now constituted var. β . *aquatica*, in wet woods, thickets, hedges, and other damp situations. About Ryde, by a little pond near Westridge farm, &c. Titchfield Common; Mr. W. L. Notcutt.

— *aurita.* In wet woods, thickets and bogs; in various parts of the Isle of Wight, most abundantly. Plentiful in New Copse, between Ryde and Wootton Bridge. Abundant on the Wilderness; Undercliff, not uncommon. Between the tunnel and Fontley; Mr. W. L. Notcutt. As Sir Wm. Hooker remarks, "One of the least equivocal species, although its leaves vary in length and roundness."

— *caprea.* In woods, hedges, thickets and bushy pastures, &c., everywhere; the most abundant of all our willows.

Dr. Salter found some years ago what he considers *S. Forsteriana*, in Northwood Park, W. Cowes. As this appears to be quite a northern species, and only a single tree was detected, it was most probably introduced by some accident into the plantations there, in which willows of several kinds have been propagated.

— *laurina.* Woods, &c. By a little pool close to Newtown, on the right of the road from Shalfleet, between the town-hall and Fretlands farm, pointed out to me as this species by Mr. Borrer, a few years ago.

— *fusca.* In sandy, heathy, or moory ground, both moist and dry, in various parts of the island. Abundant along the road-side and heathy ground adjoining it on the northern skirt of Parkhurst Forest. Var. δ . *ascendens*, *S. parvifolia*, *Sm.*, E. B. t. 1961. Moist thicket near Ryde, towards Newport. Other forms of this variable

little shrub doubtless occur here, but I am not yet prepared to state them.

†*Populus alba*. In damp woods, hedges, moist meadows, and on the banks of rivers in various parts of the county and Isle of Wight, but in most cases I find myself unable to distinguish it with certainty from the following, of which I am strongly disposed to regard it as a cultivated variety, being, indeed, unable to cite a single station for this tree in its most characteristic and best marked form, where it has an undeniably wild appearance.

—— *canescens*. In similar places with the last, also on hilly, heathy, and dry situations, as commons, &c.; not very frequent, but perhaps truly indigenous to the county. Very common about Pagham farm in hedges, and in a small wet wood near the same, plentifully. In Barton or Bucket's Copse, and in the wet hollow or valley just outside of it, betwixt that wood and Osborne House, are some large and old, as well as many young trees, apparently indigenous. Hedges about Great Park farm, two miles W. of Newport, a rather dubious station; more wild to appearance in a lane leading down to the Wilderness from the high road between Newport and Niton, a little beyond the Star Inn, but sparingly. I have noticed it also near the northern side of Briddlesford Heath, in copses, as well as in several other places in the island, but where it would be scarcely possible to pronounce whether native or introduced. Noble trees of this species grow in a field hedge near Landguard farm, by Shanklin, but pretty evidently, I think, planted, as this and *P. alba* certainly often are with us on newly made hedge-banks and along fences. There is a magnificent tree of the gray poplar a few miles south of Newport, near a farm, but the name has escaped my memory. Hedges in Hayling Island. About King's Worthy, near Winchester. In Durley Wood, near Bishop's Waltham, by the millstream, and splendid specimens around the great pond at New Alresford, of vast size and height, but I am not certain that the trees (which some might call *P. alba*) are truly wild in either place. These two species, if they be really distinct, are given in all our leading floras, both local and general, as if unquestionably indigenous, at least to England. Neither Smith, Hooker or Babington hint a suspicion to the contrary. Watson says of the Abele, "*P. alba* is clearly indigenous to the southern provinces of England" (*Cyb. Brit.* ii. p. 383). Ray (*Hist. Plant. and Synopsis*), Gerard and Parkinson* cast no doubt on its nativity, but

* "The smaller leaved white Poplar tree" of Parkinson (*Theat. Bot.* p. 1410, fig. 2) accords with my idea of *P. canescens*, as does his fig. 1, same page, "The white

speak of the Abele as somewhat rarer in their time than our other species; it is plain, however, from their figures of each, that our gray and white poplar were well known and even discriminated by those old herbalists. Turner, whose Herbal was published in 1568, has these words, "As touching the whyte Aspe, I remember not that I ever saw it in any place of England. If it be found in England, it may be called a whyte Asp or a whyte Popler, because the underside of the lefe is as white as any paper," (Herb. black letter edit. Cologne, 1568, part 2, p. 99). From this we may gather that *P. alba* and *canescens* must at least have been very rare when Turner wrote, which, though not conclusive on the question, makes in some measure against the aboriginality of these trees in Britain, for Turner was a very careful observer of our native plants, and seems to have travelled much over his own country as well as abroad. I do not question the opinion of those botanists who receive as indigenous the white and gray poplars, because my own doubts are but slight, and my experience probably less than theirs; but as far as my opportunities have gone, I could never perfectly satisfy myself that these trees, especially the Abele, were unequivocally wild in any station in which I have yet seen them in Hants or elsewhere in Britain. It has never happened to me to see either these or the black poplar occupying the recesses of our marshy woods, or fringing the banks of a woodland or forest stream, at great distances from the cultivated enclosed country, accompanying the aspen (*P. tremula*) into its sylvan wildernesses. On the contrary, I seldom see the Abele but along the streams and ditches intersecting water-meadows, the margins of ponds, and in hedgerows contiguous to houses, whilst the gray poplar wanders into wet thickets, copses and hedges, keeping about the borders chiefly of small woods, and open, damp, or heathy pastures, but I cannot call to mind having met with either this or the Abele on any of our forest bogs or streams, where it might be supposed likely to grow if they were really natives to the soil. Perhaps some who read this can point out such unexceptionable stations for one or both of these species. Again, *P. alba* and *canescens* are very commonly planted in all the places I have described; their roots creep to an amazing distance, and throw up suckers in every direction from the parent trees, and in

Poplar tree," with my conception of the true Abele in its most characteristic *cultivated* form.

this way convert a low meadow or pasture into a poplar grove. That such is the origin of many of our gray and white poplars in this island I cannot doubt; but as the trees would have the same tendency to increase by suckers from the widely-creeping roots, whether aboriginal or not, this mode of propagation affords no argument one way or the other, excepting so far as it readily accounts for the spreading of the species in spots where it has been certainly introduced. With regard to *P. nigra*, I confess to doubts somewhat more decided; no station in which I have ever seen the black poplar appeared to my eyes above suspicion.

The question now comes to be considered, are *P. alba* and *P. canescens* distinct, or are they varieties of one and the same species? My own opinion inclines strongly to the belief of their being identical, and that the former is but a state of the latter originating from cultivation or quality of soil inducing a greater development in the leaves; that they are in fact analogous to *Tilia europæa* and *T. parvifolia*, which are pretty generally admitted to differ only in the size of their leaves and a few minor points of no specific importance. Hence both these poplars may grow equally wild, but the Abele will oftener be seen in suspicious stations than the gray aspen, and this accords with observation. What lends countenance to the opinion just expressed is, that I find people not always agreed as to what is *P. alba* or what *P. canescens*, and in fact I am sometimes at a loss how to name certain individuals of these species, so nearly intermediate betwixt both do they present themselves occasionally. By *P. alba* or Abele I understand a great tree very common in plantations about houses, or in water-meadows, having large triangular or trowel-shaped leaves, *all* deeply and conspicuously angular, toothed and lobed, the under surface snow-white; by *P. canescens* a tree sometimes of equal height and bulk with the Abele, but with usually smaller leaves, for the most part of a roundish rather than triangular figure, much less deeply angular, and mostly obscurely lobed, excepting those on the youngest trees or the suckers, which are hardly distinguishable from the leaves of the Abele in size or shape, and pretty clearly prove how much an excess of moisture or nourishment has to do with determining these differences in the foliage. The leaves, indeed, of *P. canescens* are extremely variable in form on the same tree, and in general approach those of the common aspen (*P. tremula*) in outline, that is, they are often rounded and but slightly pointed at the apex, and instead of being angular and lobed are merely sinuate, or sinuate-dentate. Underneath, the leaves of *P. canescens* are as white sometimes as in *P. alba*,

in general they are less hoary, excepting, as we have just seen, in the suckers or very young seedlings, they are even sometimes smooth and glabrous, as above, or hoary in patches, as if with mildew. Such a glabrous form, of which I find a moderately large but perfectly barren tree in a heathy pasture near Pagham farm, in this island, I suppose may be the *P. canescens*, var. *β. intermedia* of Mérat (Nouv. Fl. des Env. de Paris, p. 400), and which he thought, not improbably, might be a hybrid of this species with *P. tremula*,* but like myself, the fructification was unknown to him. Lejeune (Fl. de Spa, p. 260) thinks it more allied to *P. tremula* than to *P. canescens*, and although believing it to be a variety of the aspen, makes it a species (*P. intermedia*, *Mer.*), in order, as he says, to draw attention to its characters; a bad principle to go upon in botany as in ethics. It is also, according to Gaudin (Fl. Helv. vi. p. 289), the *P. alba*, *γ. denudata* of Spenner, Fl. Frib. ii. p. 274, and I think it probable to be likewise the *P. hybrida* of M. Bieberstein, Fl. Tau. Caucas. ii. p. 422, as drawn at least by Reichenbach (Icones Fl. Germ. tab. 615), for the description of Bieberstein does not quite agree with the figure. For my own part, not having seen fructification, I know not whether to look on the Pagham tree as a hybrid or a subglabrous variety or rather state of *P. canescens*, but am more disposed to the latter opinion.

The next point to be considered is the alleged difference in the form and number of the stigmas in our two poplars, and here I am unfortunately not in a condition to offer any opinion from personal research, having hitherto failed in all my efforts to obtain pistillate catkins of *P. alba* and *P. canescens*. These trees do not flower here till they have reached a very considerable height, when the catkins are for the most part quite out of reach, and produced chiefly on the highest boughs. The few catkins of *P. alba* I have been able to procure have been staminate ones, and I suspect the pistillate plants are much rarer than those of the other sex, as I think is the case with *P. tremula* as well. I can therefore at present only collect the observations of others, and consult plates of the species, from which, and from what I have seen of the same organs in *P. tremula*, I am forced to infer that no reliance can be placed on the number or even shape

* The great affinity in structure between *Salix* and *Populus* renders it highly probable that hybrids are occasionally produced betwixt species belonging to the latter genus, but the stigmas in *Populus* are less exposed and the pollen less attractive to bees than in the willows, mules would therefore naturally be less common amongst the poplars than the willows.

of the stigmas in any of our British poplars. In Guimpel and Hayne's 'Abbildung der Deutschen Holtzarten,' ii. t. 201, 202, are good figures of *P. alba* and *canescens*, the branch of the latter apparently from a young tree or shoot; in this the stigmas are drawn as small, upright, green, decurrent, and apparently two-cleft (seen in perspective), not as in E. B., large, spreading, reddish, and palmately four-cleft (nor as eight separate stigmas, as Smith assigns the species). In Fl. Danica the figures of these species in vol. xiii. t. 2182—83, though finely engraved, represent the stigmas as precisely the same in each, namely, four, simple, filiform and spreading; the former plate intending to represent *P. alba*, so far agreeing with the character laid down by Smith, but the leafy branch is more like what I should have called *P. canescens*, having roundish, sinuate, unlobed leaves, of small size, and like those of *P. tremula* in t. 2184. The plate 2183, professing to give the true *canescens*, has leaves of a very ambiguous character, quite deltoid or triangular, like the smaller ones of *P. alba*, but the stigmas, as before stated, are the same in both, and quite unlike those in E. Botany or in the German work just quoted. This remarkable discrepancy in the form of the stigmas in three works of such repute for accuracy, coupled with my own observations on the same organ in *P. tremula*, to be noticed presently, lead to the inference that the stigmas are liable to great variation in size, shape and colour, and therefore cannot be safely trusted as discriminative of the species in this genus. From all that has been said I think it more than probable that *P. alba* and *canescens* are but forms of one species,* of which *P. canescens* may be considered as the typical state, as oftenest found wild, and *P. alba* as a variety with larger leaves, resulting from cultivation or a moister and richer soil.

Populus tremula. In low, damp, also in dry upland woods and thickets, especially on stiff clay soils; a truly, and perhaps the only really, indigenous poplar in this county and island. Abundant in Quarr Copse, and on the wet, slipped land along the shore betwixt Ryde and the Priory, &c. In Shanklin Chine. Frequent in woods about Cowes. In Stapler's Copse, Nunswood Copse and elsewhere about Yarmouth, abundantly. In Barton or Bucket's Copse, between Osborne and Barton farm (the property of her Majesty) are some very fine aspens of great height and size. Woods at Selborne and in

* Les caractères du *P. canescens* se nuancent tellement avec ceux de *P. alba*, qu'il serait peut-être plus avantageux de les réunir. — Lestiboudois Botanog. Belgique, ii. p. 460.

other parts of mainland Hants, but having omitted to note down the stations, I forbear to give them from memory merely. Stigmas four, bright crimson, nearly erect, slightly diverging only in two pairs; each (in all the specimens I can collect in this island) expanded into a broad, irregular, waved and crenate lobe, in shape resembling a cock's comb, or the fleshy inflorescence of *Celosia cristata*. The great differences in the shape of the stigmas, as I find from that given them in *E. Botany* and the authors quoted under the two preceding species, only prove how variable are these organs as regards form and perhaps number also. In my specimens the stigmas are constantly four, but in place of being linear or awl-shaped, as Smith describes and Sowerby figures them, they are invariably lobed and notched in the manner above stated. In the plate of this species in '*Flora Danica*' (t. 2184) the stigmas approach those of my specimens in form, but are much more simple or regular, widely spreading, or even reflexed, scarcely at all lobed, and much smaller, nor are they, any more than in mine, furnished with a basal auricle, as mentioned by Smith, and so drawn in *E. Botany*.* Guimpel and Hayne (*Abbild. der Deutsch. Holtzart. ii. t. 203*) come much nearer in their delineation of the stigmas to my own examples in size, shape and colour, from whence I conclude these organs vary according to age and development, if not in each individual from other causes. I found in a staminate catkin from Bucket's Copse in 1843, several hermaphrodite flowers, the stigmas of which were fully formed and of the usual size. I have remarked the brown, glutinous flower-buds of the Aspen to smell strongly of malt.

†*Populus nigra*. In wet woods, meadows and by river-sides, &c.; a very doubtful native, I fear, of Hants, and rarely seen with us in any apparently wild situation. On Watchouse Point, near the Priory, probably planted, and on wet slipped clay along the shore between Sea View and the mouth of Brading harbour. Near Steephill, apparently wild, and a tree or two betwixt Ninham farm and the Newport road, in the wooded ground along the brook, as also on wet land near the shore a little west of Cowes. A tree or two near Medham, and three or four in a wood near Cliff farm, by Shanklin, but very doubtfully indigenous, as I found a solitary Horse-chestnut in the same wood. I have sometimes thought that exotic tree occasionally propagates itself spontaneously in this country, as I believe I remember

* In this last work the floral bracts (scales) are in the separate figure represented as glabrous, doubtless through omission of the engraver.

to have heard Mr. Borrer say it frequently does in Sussex. My reasons for thinking the black poplar not indigenous with us are the same as those given under *P. alba* and *canescens*, namely, its absence in the heart of remote woodlands or on our old forest ground, and stream-sides that flow through them, as well as from its rare and sporadic occurrence in all those localities least open to suspicion of its having been purposely introduced thereto. It is, however, to all appearance so far naturalized in Hampshire, that a place could not consistently be refused it in the county flora, without excluding some other plants whose pretensions are no better than its own.

Myrica Gale. In wet thickets, bogs and on moory ground. In several parts of the Isle of Wight, abundantly. In boggy, peaty meadows along the Medina (above Newport) and East Yar, in many places abundant, as about Rookley Wilderness, &c. Plentiful in Apse Heath withy bed, also at the upper end of Sandown Level, and on the boggy skirts of Lake and Blackpan commons. At the foot of Hill Heath or Hill-side, and in Bordwood Lynch, both near Newchurch. Willow thickets by Budbridge farm, and profusely on a tract of peat bog not half a mile north of Godshill, a little beyond Munsley Hill. Sometimes in this island rising to a height of six feet. A profusely abundant plant in mainland Hants, particularly in the forest districts, where it covers acres of moorland bog. In various parts of the New Forest, as remarked by Mr. J. S. Mill (*Phytol.* i. 92). Abundant in a bog below Boldre church; near the Roman camp called Buckbarrow Rings, and elsewhere in the parish. Bog on the right hand below the road about three miles from Lymington towards Brockenhurst. Abundant along the line of railway between Brockenhurst and Ringwood. In the moory ground about Sowley Pond and on its boggy margins, in the utmost profusion. At Bournemouth and near the Christchurch Station. Abundant on the boggy parts of Titchfield Common and in the marshes near Grange farm, by Alverstoke. Parley Heath; Mr. Curtis in *litt.* and *Brit. Entom.* xvii. t. 763 (*ex loca*). I think I have seen it in plenty on Wolmer Forest, near Bishopstoke and elsewhere, but find no notes to that effect, nor have I any station as yet to record for it in North Hants, although I believe it to be very generally distributed over the county. This shrub is called, in the Isle of Wight, Golden Withy, Sweet Withy, Golden Osier, and is, if I remember rightly, used by our forest population as fuel, being from its resinous nature highly inflammable. The delightful fragrance of the leaves partakes of the combined aroma of cloves and ginger.

Betula alba. In low wet or boggy, and in elevated sandy, heathy or turfy, woods; frequent throughout the county and Isle of Wight. Marvel Wood, near Newport, is mainly composed of this tree. At Apse Castle, plentiful. Common in the New Forest, where the trees reach a very respectable height, but greatly inferior to the magnitude the species attains in the north of Britain. Boggy parts of Wolmer Forest, as well as in upland woods in most parts of Hampshire. I do not know if we have both the species or varieties (*B. alba* and *B. glutinosa*) given in the 'Manual.'

Alnus glutinosa. Common in wet swampy ground, water meadows, banks of rivers, streams, &c. throughout Hampshire. Often forming groves or thickets by itself, called Alder swamps or Alder cars, as at Alverstton and elsewhere in this island.

Fagus sylvatica. In dry, and more especially steep upland woods; less abundant in the low flat grounds or along the sea coast; profusely on almost all the chalk ridges of the mainland, on the precipitous flanks of which it constitutes vast natural woods, called in the county "*hangers*," sometimes composed solely of beeches without any undergrowth whatever, at other times filled up with a dense thicket of brush, or intermixed with yew, ash, oak and other forest trees. The profound silence and solitude of these woods, standing betwixt converging hills, which they clothe to their summits, and descend on their opposite side into valleys as lonely and devoid of life and sound,—where the eye cannot pierce the interminable vista of tall, straight and smooth boles shooting up high over head ere they expand into the leafy canopy that half excludes the day, shedding a twilight gloom on the pale brown flowerless ground, bestrewn with many generations of fallen leaves, crisp and crackling under the tread of the sylvan wanderer,—inspire a strange feeling of awe, half akin to fear, and the words of Dante in the opening canto of the '*Inferno*' unconsciously recur to memory:—

E quanto a dir qual era è cosa dura
Questa selva selvaggia, ed aspra e forte,
Che nel pensier rinnuova la paura!
Tanto è amara che poco è piu morte.

Such is the character of our beech woods in their inmost recesses and in their most exclusively unmixed features, but on the sunny slopes of the chalk hills, where the beeches stand detached and interspersed with other trees and a rich undergrowth of shrubs, beauty and verdure take the place of gloom and monotony. In the dark deep valleys or

ravines before alluded to, an occasional holly, yew or juniper, rising betwixt the bare trunks, breaks with its black melancholy green the sombre continuity of shade, only to make it more sombre and lifeless still; but on emerging from these pent-in valleys, and gaining the outer escarpments, a scene of sylvan softness and variety succeeds, and the beechen woodland, now open to the light of day and animated with the song of birds and the hum of insects, no longer oppresses the mind with a sense of loneliness and desertion as before. The steepness of these hangers is such as in some places hardly to afford footing to the explorer, and down the angles formed between the smaller crests and ridges, the rains plough gullies in the chalky ground called in the county "slidders," from their excessive slipperiness, and which it behoves him to descend with caution should he choose them for his path to the plain below. These beechen uplands abound with a variety of interesting plants and shrubs, some of them rare and local, others common to them and the low country, as *Monotropa Hypopitys*, *Cephalanthera grandiflora* and *ensifolia*, *Hermidium Monorchis*, *Helleborus viridis* and *fœtidus*, *Daphne Laureola* and *Mezereum*, *Pyrus Aria*, *Aquilegia vulgaris*, *Listera Nidus-Avis*, *Convallaria multiflora*, *Ophrys apifera* and *muscifera*, *Epilobium angustifolium*, *Taxus baccata*, *Rhamnus catharticus*, &c.

In the Isle of Wight the beech is far less abundant than on the mainland near the coast, and the beautiful hanging woods of this tree that form the pride of Hants and the adjoining counties of Surrey, Wilts and Dorset, are quite wanting on our side of the Solent. Here the beech occurs sporadically, and I have sometimes even thought it might not be aboriginal in the island; it appears, however, as if quite wild in some of our rocky woods, as in Cowpit Cliff Wood, near Shanklin, and elsewhere, but rarely, and never attains here to any remarkable size except where it has been planted, as in Appuldurcombe Park, which abounds with fine beech timber. In the New Forest the beech grows detached and intermixed with oak, birch and holly in open glades, and although attaining a large size, seldom, if ever, forms woods of itself in the lower flat country, but only on the hills.

I shall not here enter upon the discussion of the question that has been raised by a few of those classical objectors who measure every opinion by the standard of antiquity, and who would rather think wrong with the ancients than be set right by Nature; namely, that the beech cannot be an aboriginal native of Britain, because Julius Cæsar tells us he found neither pine nor beech in this country at his

invasion of these islands. I have elsewhere in this paper remarked on the absurdity of pinning one's faith to any ancient text, with all its liability to corruption or misconstruction from time and the ignorance or carelessness of transcribers, before printing gave thought power to fly about the world on a hundred wings in unimpaired originality of expression as of conception. I suppose a botanist could scarcely be found at the present day hardy enough to risk being laughed at for quoting Cæsar's 'Commentaries' to prove that the beech was no true Briton: the *prestige* of classical authority, like the Aristotelian philosophy once and so long paramount in the schools, has vanished before the practical and inquiring spirit of our age, and we learn to know Nature by her own teachings, not from the dicta of her disciples or the wording of a musty record. Yet I confess, the objections that have been taken against admitting the nativity of several British plants whose claims have been discussed in these Notes, appear to myself not a whit more reasonable than in the case we have been just considering, since we have here the sanction at least of a great *name* of antiquity, be its authority in botanical matters what it may; in the other instances we have little but bare conjecture or unproved assertion as the foundation of doubt. I have often, like Mr. Watson, felt desirous to ascertain the real or natural limits of the beech in Britain, which we may hope to see accomplished through careful observations by northern botanists. On the continent of Europe this tree ranges to a latitude as high as the extremest north of Scotland, but there can be no doubt it fails in Britain several degrees lower than in Sweden, the southern part of which country is quite within the true beech region, which occupies the greater part of central and western Europe, in the plains or at moderate elevations. It is rare or wanting in the extreme eastern countries of the continent, as Poland and Russia, being comparatively a tender tree, and according to Fischer (*Versuch einer Naturgeschichte von Livland*, 2te Auflage, s. 631) apt to suffer from the cold of winter at Riga, lat. $56^{\circ} 57'$, when not sheltered by its neighbours of a hardier kind.

†*Castanea vesca*. In woods and hedges; not uncommon in the Isle of Wight and county generally; perhaps really naturalized in the strictest sense by spontaneous dissemination in many places, but rarely; more frequently planted, and certainly, I conceive, very doubtfully indigenous to any part of this realm. In Lorden Copse, near Shorwell, are several trees of considerable girth and evidently great age, which in certain seasons produce small but well-flavoured

fruit, as I learn from the country people, whilst in other years the nuts do not fill in the shell. Climate, however, would seem not to be the cause of failure in the fruit of the chestnut in this part of England, since even that of the beech is apt to be abortive in a similar manner, becoming as it were atrophied by absorption, the nuts appearing to the eye as large and well filled as usual, but on being broken are found to be hollow, with no trace of any part of the seed visible excepting the hairy funiculus. The practice of planting young chestnuts in the copses, amongst the brushwood, is so frequent with us on account of the value of the wood of a few years' growth for hop poles, that it is next to impossible to say where this tree is of spontaneous origin: I am inclined to believe that the few old chestnuts that are to be found scattered here and there in our woods and hill-side copses may be of Nature's planting, in so far as they were seedlings from trees originally introduced. I have found the chestnut apparently wild in this sporadic condition near Petersfield and elsewhere, both here and on the mainland, but have never remarked it in any considerable numbers where I could persuade myself that it was not introduced by human agency. Compared with the beech its power of occupancy with us is very feeble, which is not the case in those countries where the chestnut is truly indigenous, as few trees are more gregarious than both this and the beech where the climate and soil are suitable; witness the vast chestnut groves that clothe the lower mountain ranges in the south of Europe. Mr. Watson (*Cyb. Brit.* ii. p. 377) very justly remarks that the chestnut "does not spontaneously spread and multiply so as to obtain a hold over the wastes and neglected places, after the manner in which we see the *Quercus* or the *Pinus* establish itself without human agency, or even in defiance of human processes which oppose and impede the natural tendency to spontaneous increase." True it is, that such power of occupancy is not in all cases needed to prove a tree indigenous, as some species are in their nature sporadic, and enter but sparingly into the general constituents of the forest, as *Pyrus torminalis*, *Ulmus montana*, *Prunus avium*, &c. Neither is the tendency to spread and multiply abroad and take possession of the waste places of the earth confined to such trees as are aboriginal to the soil they usurp, a notable instance of which I shall soon have to bring before the reader ere dismissing the Dicotyledonous plants of the county. But we may well expect to see trees that are naturally gregarious equally social, or nearly so, in all climates fitted for their spontaneous growth, and unless we find them obviously multiplying by seed and maintain-

ing their position with unquestioned natives, may reasonably entertain distrust of their aboriginality. As regards the chestnut, I cannot actually prove its spontaneous dissemination in our woods by natural means, although disposed to admit the fact from certain appearances which favour the conclusion; my objections to receive it as a native tree are founded, however, upon other considerations, of which the principal is its geographical distribution. From careful comparison of the accounts given by botanical investigators in both hemispheres, I come to the conclusion that the chestnut ceases to grow wild in Asia, Europe and America on or about the 44th degree of latitude, although in Europe at least it may be carried much further north by cultivation, and may even continue to propagate itself spontaneously in favourable situations in France, Switzerland, Germany and England. It has indeed been doubted whether the chestnut be aboriginal to any part of western Europe, even the most southerly, because its name in all European languages comes from one root, and intimates its alleged dispersion over our continent from *Castanea*, a city of Thessaly.* Without entering on the discussion of the truth of such

* Many of the plants in common cultivation in the south of Europe for use or ornament, as the Vine, the Fig, the Olive and the Judas-tree, have been supposed of Asiatic origin, and to have been introduced into our quarter of the globe as civilization advanced westward. Having myself seen all these plants in places where they had a perfectly native aspect, I am grown very sceptical on this point, and believe that *Vitis vinifera*, *Olea europæa*, and *Cercis Siliquastrum* are the truly indigenous representatives in Europe of their corresponding genera in the New World, where under similar latitudes or nearly so *Cercis Siliquastrum* is replaced by *C. canadensis*, *Olea europæa* by *O. caroliniana*, and *Vitis vinifera* by *V. Labrusca* and its congeners, it often happening that a genus of which there exists but a solitary European species has two or more American representatives under the same parallel of latitude in both hemispheres. The great similarity of type in the vegetation of Europe and America strongly favours this idea of community of genera and even of species, so that as regards the chestnut, since it is an acknowledged native of the Old World, its absence from the flora of Europe up to the parallel it attains in the New would rather be a matter of surprise, considering how extremely common it is in the latter, and that the species differs little or nothing as it presents itself in either hemisphere. Lindley has indeed gone so far as to rob the "*littora myrtetis lætissima*" of Italy of their chiefest glory, for he tells us in his '*Vegetable Kingdom*' (second edition, p. 736) "*Myrtus communis*, the most northern species of the order (*Myrtaceæ*), is a native of (Persia, but has become naturalized in) the south of Europe." I am not aware from what source the Doctor got this information: the introduction of the myrtle into our quarter of the world from Asia must have been from the remotest antiquity, which in itself would be a reasonable cause for doubting the fact, did not the vast profusion and wide dispersion of the myrtle over every part of the Mediterranean shores and much of the Atlantic coasts of Spain and Portugal pretty plainly refute that tradition.

refined speculative reasoning (to be always admitted with caution when opposed to the evidences which nature presents), I may remark that probability is very greatly against the chestnut being indigenous to any part of Europe north of the Alps, or (with perhaps some partial inflections) beyond 44 or 45 degrees of latitude. It is wanting over the greater part of Germany, and only occurs in a cultivated condition in Hungary, Lower Austria and the Tyrol. It is unknown in Russia proper, and first appears in the conquered Caucasian provinces of that empire according to Pallas and M. von Bieberstein. Koch says of it (*Syn. Fl. Germ. et Helv.* 2nd edit. p. 736), "*Colitur, et in regionibus calidioribus sylvas format solâ culturâ ortas.*" Such I have little doubt was the origin of the chestnut woods that formerly existed in the south of England, as the gigantic trees of this species still in being prove it to have been introduced at a very early period into Britain. Turner, writing in 1568, says, "Chestnut trees grow plentifully in Kent abroad in the fieldes and in manye gardins in England," (*Herb.* p. 114). Gerarde still later affirms, "There be sundry woods of Chestnuts in England, as a mile and a half from Feursham in Kent, and in sundry other places." I believe these old woods are now destroyed, but the tree is abundantly cultivated in the present day for hop-poles, a use it could not have been put to in Turner's time, since hops were not then grown in England, as we have seen under that plant. In America the beech and the chestnut flourish together at the sea level; I found them so growing in Canada West as far north as the parallel of Niagara or lat. $43^{\circ} 27'$, where it is still very common in the woods.* In the south of Europe below the limits assigned as the true natural boundary of the chestnut, this and the beech inhabit zones of different elevation, and are seldom, if ever, seen associated, though both very gregarious by nature, showing clearly that a different climate and temperature is required for each. Now since the beech finds, even in the south of England, a climate

* The American beech, *F. ferruginea*, although long regarded as a variety of the European *F. sylvatica*, is unquestionably a most distinct species, and much the handsomer tree of the two, the leaves greatly larger, distinctly serrated, and so nearly approaching those of the chestnut as in very young trees to be scarcely distinguishable from them at first sight. *F. ferruginea* grows wild sporadically in the low country of Carolina and Georgia. I have seen it in the forests near Savannah in company with *Magnolia grandiflora*, *Gordonia lesianthus* and *Palmettos* under a mean temperature of 66 Fah. and 32 degrees of latitude. In the south of Europe *F. sylvatica* is never found spontaneous at the sea level or descending on the mountains into or below the region of the chestnut.

congenial to its spontaneous growth at very slight elevations above the sea, or at the level of the ocean itself, is it likely that the same temperature so appropriate to the well being of the beech would equally suit the chestnut, which on the mountains of Italy and Spain is always found inhabiting a zone of elevation quite distinct from and subordinate to that occupied by the beech? The proper region of these trees is essentially different, and furnishes, I think, a good additional argument for rejecting the claim of the chestnut to aboriginality in Britain.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued.)

On the Locality for Tulipa sylvestris at Bitton, Gloucestershire.

By T. B. FLOWER, Esq., F.L.S.

I THINK it necessary to mention in the pages of this journal, that the locality given for *Tulipa sylvestris* at Bitton, on the authority of the Rev. H. T. Ellacombe, is an error, as I have been informed by that gentleman,—the plant having been traced from his garden into the meadows near the church. The locality being now destroyed, but mentioned in the last edition of Withering's 'Arrangement of British Plants,' I have been induced to send the present communication, for scarcely a season passes without some botanist being disappointed in not finding it, and also to prevent the propagation of the error.

T. B. FLOWER.

Seend, Melksham, Wilts,

March 6, 1850.

Contents of the 'Botanical Gazette,' No. 15, March, 1850.

On Proliferous Heads of *Trifolium repens*. By Robert C. Austen, Esq. With a lithographic plate.

Description of a New Botanical Drying Apparatus. By T. Twining, Jun., Esq. [A sort of trellis-work or open railing is substituted in place of the usual boards, both externally and between the strata of paper internally; thus insuring a free circulation of air; although at the sacrifice of that more complete uniformity of pressure which is

given by a plane board. The apparatus is well adapted for use where the process of desiccation can be expedited by a current of hot air. The clear description is rendered still more clear and descriptive by the aid of two wood-cuts.]

On the Definition of Species, Sub-species, Races and Simple Varieties. By M. Chevreul. [Translation from the 'Annales des Sciences Naturelles,' 1846.]

On the Fructification and Germination of the higher Cryptogamia. By W. Hofmeister. [Translation from the 'Botanische Zeitung,' Nov. 9, 1849.]

A list of Plants growing in or near Farnham, Surrey. By Walter W. Reeves.

Literature: Contents of various botanical periodicals. Proceedings of Societies.

Miscellanea: Records of Localities; M. Alphonse De Candolle's resignation as Professor in the Academy, and Director of the Garden, at Geneva; Culture of Madder in Greece; Obituary, Count J. C. von Hoffmansegge.

Contents of 'Hooker's Journal of Botany,' No. 15, March, 1850.

Botanical Excursion on the Amazon, S. America. By R. Spruce, Esq.

Decades of Fungi. By the Rev. M. J. Berkeley.

Extracts from Dr. J. D. Hooker's Letters. Continued.

Botanical Information: Professor De Candolle; Dr. Asa Gray; Bourgeau's new journey to Spain, as botanical collector; Death of Dr. Koch, and of John Nuttall, Esq.

Botanical Society of London.

Friday, February 1, 1850. Arthur Henfrey, Esq., V.P., in the chair.

The Secretary read a letter from the President nominating the chairman Vice-President, in the room of the late Edward Doubleday, Esq.

Donations of British plants were announced from Mr. Borrer, the

Rev. W. A. Leighton, Mr. J. D. Salmon, Dr. Mitchell, Mr. C. Prentice, Mr. F. J. A. Hort, Mr. J. A. Brewer, Mr. P. Gray, the Rev. W. N. Hind, Mr. E. Brown and Mrs. Atkins.

The continuation of Mr. W. H. Coleman's paper 'On the Plants indigenous to the Neighbourhood of Horsham, Sussex,' was read.

Friday, March 1, 1850. John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from Dr. Southby, Dr. Joseph Dickson, Mr. R. Ranking, Dr. Mitchell, and Mr. Wing.

Mr. F. Townshend presented specimens of the supposed new species of *Glyceria*, *G. pedicellata*, intermediate between *G. fluitans* and *G. plicata*, described in the 'Annals of Natural History' for February, 1850.—*G. E. D.*

Discovery of Epipactis ovalis in Herefordshire, with Notes of the more interesting Plants found in a Day's Excursion on the Great and Little Dowards. By WILLIAM BENNETT, Esq.

ON the 22nd of 8th month (August) last, we started for Whitchurch, six miles from Ross, on the Monmouth road. The Dowards are two of a series of rough limestone hills, the steep sides and picturesque outlines of which contribute so much to the far-famed beauty of the banks of the Wye, in these parts. The Great Doward immediately overlooks this village. Under the guidance of a friend of one of our party resident there, we took a steep pathway just opposite the Crown Inn, terracing at first amongst cottages, directly up the hill. By the sides of a brook, on leaving the road, grows *Epilobium roseum*, a plant not uncommon in this district. A little higher, *Hypericum maculatum* is found sparingly, and *Hypericum montanum* in great abundance. On a dry, sandy spot, close to a neat little school-house, lately erected in a most romantic position near the summit of the hill, *Plantago Coronopus* was plentifully growing. The views of the valley below from the various points which this elevation affords, are delightful. It commands one of the broadest parts of the vale of the Wye; and at this season of the year we looked down upon farms and cottages, and happy corn-fields, some being cut, some carried,

and some still waving with the golden promise of a beautiful autumn. Upwards, the river winds away behind the bold buttresses of Huntsham Hill, with its singular crest or coronet of noble rocks, and downwards is lost among the finely-wooded bases of the hills towards Monmouth. The rich plain opening out in the former direction, is ornamented with many genteel villas; among which Goodrich spire peeps out conspicuously, while the distant prospect comprehends the flat tops of a portion of the chain of the Black Mountain, in Brecknockshire, the Clee Hills, in Shropshire, and other promontories, wearing an aspect such as one may imagine to belong to the ancient land-marks of the post-Silurian or Devonian sea. In the open spaces among the brushwood on these heights, *Gnaphalium rectum* was gathered in some plenty. We sought in vain for *Cuscuta epithymum* on the Calluna, which, including the delicate white variety, grows here, in great beauty and profusion. It is curious that not one of this family of parasites should, as far as we know, occur in this district spontaneously. *Cuscuta Epilinum* appeared upon crops of flax in 1847, the only occasion of its culture being attempted in this neighbourhood; but that species has no farther claim to nativity, since its victim, so far from being wild, can hardly maintain its ground as a garden escape. Along the summit of the hill, *Gentiana amarella*, by no means a common plant in these parts, grows exceedingly fine. A little further is a beautiful patch of *Campanula rotundifolia*, purely white, which has maintained its permanence for several years. *Atropa Belladonna*, then past flower, has spread itself by numerous healthy young plants coming up on the broken, rough ground, or among the debris, wherever there was an excavation. *Viola hirta* is here abundant.

Proceeding along the crest of the hill, and bending southwards, the views, which now include the further windings of the Wye in that direction, and the town of Monmouth, are rich and beautiful in the extreme. The opposite hills, forming the immediate bank of the river, are clothed with fine oak woods coming down to the water's edge. Among them is to be seen the celebrated druidical remain,—a portion of the wood being cut away in order to exhibit it at a distance,—known as the “Buckstone.” On descending into the valley between the two Dowards, we come upon an extensive cavern, with several chambers and passages, known as “King Arthur's Hall.” It is profusely ornamented with ferns, but all of the commoner species.

Continuing along the pathway towards the river, *Cardamine impatiens* is found in plenty, principally in spaces on both sides, where

the wood had been cut down. And here we first came upon *Rubia peregrina*, scrambling in the thickest places, over almost every bush. It was past flower and covered with its berries in these lower parts of the river; but about some rocks higher up, we afterwards found it in full flower. Here, too, was *Hippocrepis comosa*, a rare plant in this district. The captain of our party, William H. Purchas, of Ross, had likewise the good fortune to light upon *Carex montana*, though but sparingly; the second locality in which he has found it, and the third only at present authenticated. It is here, as in the Wyndcliff woods, accompanied by *C. digitata*. The latter plant occurs in the steep woods on the other side of the river at the foot of Symon's Yat, and he has often searched for the former in that spot, expecting some day to find it, from the similarity to the Wyndcliff station. Its discovery on this occasion was an agreeable surprise, but it will very probably turn up in many other localities.

We now directed our course to the Little Doward, so named, though scarcely inferior to its elder brother, and more conspicuous in position. It is crowned by a spiral observatory, forming a landmark for the country round. One object of our excursion was *Lactuca virosa*, which we had been informed had lately been found here. After some steep climbing, nearly in the direction of a new stone wall, which has been run very needlessly in the eyes of a botanist in such a rough and little frequented portion of the country, from the very summit of the hill to the river's brink, by way of a recent inclosure of the Little Doward, we came to a large, rough quarry about half way up the hill. We had noticed *Artemisia Absinthium* among the loose rubbish cast out in constructing this wall. From a point overlooking the quarry, W. H. Purchas espied on a ledge a plant too distant to make out, with branches ascending, not accessible from above, and somewhat difficultly from below. On going round, and mounting steadily from ledge to ledge, the lightest of our party soon got at it, and returned in triumph, dragging a magnificent specimen of the said *Lactuca*, measuring very nearly eight feet from the root-leaves to the extremity of the corymbose head. We sat down to carve up the mammoth into manageable portions for the various botany-boxes, unanimously agreeing that the perfect specimen, if brought home, was too large for any Bentall that has yet been manufactured. We afterwards found plenty of plants of smaller and more portable pretensions; and observed that it was abundantly self-sown, higher up about the rocks.

The summit of the rocks that crown this shoulder of the Little

Doward, commands another enchanting view of the river scenery. The rocks themselves are covered with a good sprinkling of *Asplenium Ruta-muraria*, not a very common habitat for this fern, more usually addicted to old walls, bridges, and other more or less artificial localities. Several zigzag pathways conduct down the hill; and in many parts they were completely fringed with *Geranium sanguineum*. It was now all but past flower, but in the season must present a gorgeous sight. Here and there were interspersed the pretty tassels of *Serratula tinctoria*. About one-third down, at a point so precipitous that the successive ledges of rock beside the pathway were brought on a level with the eye in the descent, the youngest of the party checked his career, and drew up suddenly to a dead stand at a plant which those who were in advance must just before have passed. "*Eureka*—back again—come and see before it is plucked—*Epipactis non-scriptus*!"—were the successive shouts, as the one who was immediately following spied two more of the same plant on another ledge among the bushes. "It must be *ovalis*, what a glorious find!" pronounced the best botanist of our party, after due examination. One specimen was gathered with the root, those of the others we were careful to leave uninjured, as well as two smaller plants, that did not look as if they would flower this year, which were all we were able to find.

The plant is smaller, of a much less robust habit, and more graceful, with the spike far less profusely flowered, than *Epipactis latifolia*. The foliage is somewhat scanty, the leaves alternate, semi-amplexicaul, almost perfectly oval, exclusive of the point (which is uniformly eaten off in the single specimen with me), and of nearly equal size, excepting the upper one, which is attenuated to the bracteal form. On comparing our specimens in the evening at home, with a dried example of *Epipactis ovalis*, in the possession of W. H. Purchas, and with the figure and description of that plant in the 'English Botany, Supplement,' vol. iv. 2884, we found that though agreeing sufficiently in general appearance and character, and exactly in the kind of locality, our plant, notwithstanding its identity in the outline of the terminal lobe of the lip, did not possess the rugose, triangular, elevated crenate space in the centre. A single flower was therefore detached, and sent by post to Charles C. Babington, for his opinion, but being absent from home at the time, he did not obtain it in a fresh state. One of the three complete specimens was subsequently forwarded to that gentleman by W. H. Purchas, who in due course received from him the following obliging reply: "The *Epipactis* has interested me

greatly, and should be looked after next summer, and the permanency of its structure determined. It is very like indeed to *E. ovalis*, and I fancy will prove identical with that plant, notwithstanding the terminal lobe wanting the rugose space. I presume that the tip of this lobe, when laid flat, made the lip as long as the petals and sepals. There is still much to be made out concerning the forms combined under the *E. latifolia* of authors. A plant which I found several years since near Keswick, and of which my friend Mr. Hort has now obtained more advanced specimens, has a lobe to its lip nearly of the shape of your plant, but then the lip is much shorter than the sepals, &c. I fancy that I sent this Keswick plant to Copenhagen lately, and it is decided by Danish botanists to be new to them." The plant has since been seen by several good botanists in London, and pronounced to be *ovalis*.

We spent considerable time in the hopes of detecting *Poterium muricatum*, which had recently been first announced as a British plant by G. S. Gibson, but without success. All the examples we could find with the fruit were undoubtedly referrible to *P. Sanguisorba*.

Hutchinsia petræa grows on the rocks above; *Daphne Laureola* is scattered among the woods, and *Aquilegia vulgaris* was observed occasionally along their margin, but all of course long past flower. *Mentha rotundifolia* is a plant that grows by the road-sides and pathways and in many spots in this district in the greatest profusion. On the other side the river *Campanula latifolia* is a great ornament. *Conium maculatum* forms a perfect forest in one part, of plants from ten to twelve feet high, and is scattered about everywhere. On a stony bank *Glyceria distans* was found, and in the woods *Triticum caninum* sparingly. In the river itself *Ranunculus fluitans* was still floating a few flowers. On the margin a gigantic form of *Valeriana officinalis* with unusually divided leaves, and the handsome spikes of *Lythrum Salicaria* and *Lysimachia vulgaris* were conspicuous.

Turning up the river, we met with *Dipsacus pilosus* in great size and plenty, both within the wood, and in the hedges on both sides the pathway. Before coming to the boat-house, where pleasure parties on the Wye mostly stop for rest and refreshment, the rocks and woods retreat, leaving a fine smooth open meadow. Here we could not help reclining a little on the green bank by the river side to watch the progress of several boat parties then passing, and listen for a short time to the sweet music and sweeter voices that arose therefrom. We were precisely opposite a façade of high rocks on the other side, which faithfully returned both the softer and the harsher notes that

were directed against them. Near a barn on that side the river is a station for *Inula Helenium*, where we had gathered it a short time before. Further along the bank, near the new weir, we came upon a magnificent patch of *Epilobium angustifolium*, along with *Saponaria officinalis* and *Hypericum Androsæmum*, not uncommon. Numerous plants of *Helleborus fœtidus* were seen within the edges of the wood, but how far from any former habitation it is difficult to say, though at present certainly more than half a mile; for somewhat further we came to some old, abandoned iron-works, among which were growing *Mentha sativa*, several varieties, *M. sylvestris* and *M. viridis* interspersed, and in large beds, probably the site of the former cottage-garden of the overseer of the works.

Exactly opposite this spot is the station for *Polypodium calcareum*, mentioned in Newman's 'British Ferns,' p. 132, where it has probably much extended itself, by means of its creeping rhizoma readily penetrating among the loose moss and decaying leaves, and coming up often at a considerable distance from the parent plant. It now completely occupies the ground among the bushes for a considerable space, and extends up the steep side of the hill, from the bank that bounds the footpath along the river, over the greensward road that leads to Symon's Yat, and mounting the broken, rough ground towards the perpendicular wall of rocks that breast the summit, further than we have had time to trace it. It occurs also under the tall, romantic rocks on the other side of the bend, known as the Caldwell Rocks.

We were now within a mile of Whitchurch again, after a most delightful, and, as we thought, successful day, and reached that village on our return, escaping the fascination of a neat little public house, with the attractive sign of the "Symon's Yat," and the following tempting lines conspicuously inscribed:—

"The weather is very hot,
The roads are very dusty,
Do step in and take a pot,
I'm sure you must be thirsty."

WILLIAM BENNETT.

Additional Note on the Ovule of Viscum album.

By WILLIAM WILSON, Esq.

(Continued from vol. ii. p. 986).

IN Dr. Lindley's 'Vegetable Kingdom,' article Loranthaceæ, it is stated, "as a most curious phenomenon," that the ovule of *Viscum* does not appear till three months after the pollen has exercised its influence. In February last, on dissecting some unexpanded flowers, I ascertained that the three claviform sacs (*nuclei*), represented at fig. 8, p. 985, exist previous to the period of fecundation. On the 2nd of March, the flowers having opened, I again examined the ovules, and traced the pollen-tubes very distinctly from the surface of the stigma to the region of the nuclei, but could not find any instance of actual contact. At this period each nucleus appears as a pellucid membranous sac, containing almost unorganized fluid, with faint traces of an embryonary sac at the top, where it is rounded and obtuse, and the pollen-tubes themselves are rounded and somewhat swollen at the extremity. At a later period it is probable that the pollen-tubes will be found united to the nuclei.

WILLIAM WILSON.

Warrington, March 8, 1850.

Note on the Ovary of Cucurbitaceæ. By WILLIAM WILSON, Esq.

STRANGE as it may at first sight appear to those who have not attentively studied the subject, it will be found that Dr. Lindley's view of the placentation of this order is not so correct as the one long since published by Dr. Arnott. That of Dr. Wight is founded on a mistaken opinion that the stigmas are opposite to the placentæ, whereas they are placed opposite to the rays of stigmatic tissue. In fact, the ovary of Cucurbits chiefly differs from that of Begoniads in having the margin of each carpellary leaf still more strongly involute, and its whole substance very tumid and pulpy; so that the three dissepiments, though they really exist, are rendered quite inconspicuous. Hence, the placentæ are not truly parietal, although they stand very near to the walls of the ovary in consequence of the inflexion of the

carpellary leaves; and it is incorrect to say that the ovary is one-celled.

WILLIAM WILSON.

Warrington, March 12, 1850.

Remarks upon a few of the Rarer Plants found in Cheshire.

By ROBERT HOLLAND, Esq.

WHILST botanizing last year in Cheshire, I made a few remarks upon some of the rarer plants that I found. I send you my notes, that you may make use of them, if you think them worth a page in the 'Phytologist.'

Corydalis claviculata. This elegant plant is by no means uncommon in Cheshire, being found on most of the peaty soils, covering the hedge-banks, and clinging to the hedges, in masses so tangled and matted together as almost to choke up the plants over which it trails. I have seen it literally hiding the ground in woods planted on a peaty soil. The localities where I have found it the finest, and growing in the greatest abundance, are woods around Holford Moss, near Northwich, and on the hedges in various parts of the parish of Mobberley.

Cardamine amara. This grows on the banks of the brook that flows through Marthall, and it is to be found by the side of most of the streamlets in the neighbourhood.

Tilia parvifolia. Of this I have seen many fine trees in the woods around Tabley, Knutsford, but I should be cautious in recording this as a true locality, as in all probability they have been planted there.

Arenaria marina. I have never botanized on the Cheshire coast, and cannot say whether this plant is to be found in the county growing in its natural localities, but I have gathered it in a perfectly inland situation, on the margins of the reservoirs in which the rock-salt is dissolved, at the salt works, Northwich, where it grows, not sparingly, here and there a plant, as if the seeds had by some chance been scattered there, but plentifully, shooting up in every crevice of the stonework. Indeed, I should think that the distance from the sea is too great to allow of the seeds having been brought there by either birds, the wind, or by canal boats, and therefore it is fair to look upon these plants as existing evidences of a sea having covered Cheshire at some (geologically speaking) recent period. An idea beautifully followed out by Professor Buckman, F.L.S., in a most interesting little work

entitled 'The Ancient Straits of Malvern.' The seeds of these plants were left when the waters dried up, they remained buried in the earth till salt works were commenced, then, the circumstances necessary for their growth being present, they sprang up, and now are to be seen flourishing upon the edge of every brine-pit. At the same place, and growing still more plentifully than the sandwort, are the *Poa maritima* and *Glyceria distans*.

Rhamnus Frangula. This shrub grows in the hedges and thickets, on light, peaty soils. Many plants of it are to be found in Mobberley.

Andromeda polifolia. Cheshire seems to be quite a favourite county with this beautiful little plant. It may be seen on most of the peat bogs, and in some places in the greatest profusion. I gathered specimens last year on Lindow Moss, Mobberley, at the latter end of June, at which time they appeared to be going out of flower; and though I found many specimens beautifully fruited, I had some little difficulty in obtaining many flowering plants. I was rather astonished to find them going out of flower so early, as I remembered having gathered them in 1848 in August. But upon revisiting the spot at the beginning of that month last year, I was agreeably surprised to find my plants coming into flower a second time, nearly all the plants now bearing flowers or flower-buds.

I do not know whether this fact of the *Andromeda* flowering twice during the year has ever been observed by botanists; but at any rate the knowledge of it may be interesting to some, who, like myself, have never heard of or noticed the fact before.

Lindow Moss deserves a passing notice. It is an extensive peat bog, reaching from Wilmslow to Mobberley, a distance of about four miles; the breadth is somewhat less.

From Manchester the botanist can arrive at the Moss by stopping at either the Wilmslow or Alderley station, on the Manchester and Birmingham line, from each of which places the walk to the Moss is about a mile. The place possesses great charms for the botanist. Round one side grow rich plantations of *Osmunda regalis*, many of the fronds of which measure upwards of six feet in length, *Blechnum boreale* and *Lastræa dilatata*, with many of its varieties, common plants, it is true, yet plants of extreme beauty, and always admired by botanists.

On the Moss itself are the *Vaccinium Oxycoccos* and *Narthecium ossifragum* in vast profusion. *Drosera rotundifolia* and *D. anglica*, *Rhynchospora alba*, and of mosses several species of *Sphagnum*. To the collector of Carices, perhaps no county will furnish so great a

variety of species as Cheshire. This is doubtless owing to the undrained state of the land, and to the consequent number of marshes and damp spots that are to be met with on all sides. The edges of these wet places are fringed with Carices of many species, but especially with that most beautiful plant, the *Carex pseudo-Cyperus*.

ROBERT HOLLAND.

Royal Agricultural College, Cirencester.

Figures and Description of Scirpus Savii, S. & M.; *β. monostachys*, Hook; and *Scirpus setaceus*, L. By R. WITHERS, Esq.

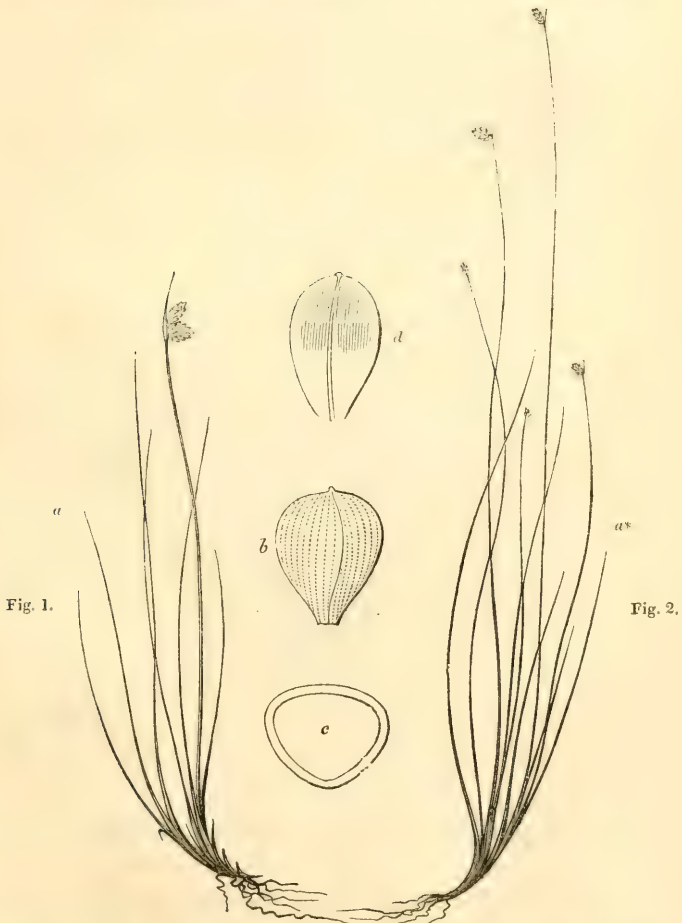


Fig. 1. *Scirpus Savii* (S. & M.), *Isolepis* (R. Br.)

Fig. 2. *β. monostachys* (Hook.), *I. pygmaea* (Kunth).

Fig. 1. Scirpus Savii (S. & M.)—Isolepis (R. Br.)

a. Plant, natural size.

b. Magnified nut.

c. „ section of ditto.

d. „ glume, showing the greenish glume with the brownish spot upon each side of it, covering sometimes a large, but more frequently only a small portion of the upper part.

Hab. Under Pennard Castle, Gower; Mr. R. Withers, 1848.



Fig. 3. Scirpus setaceus (L.), Isolepis (R. Br.)

Fig. 2. Scirpus Savii—β. monostachys (Hook.)

*a.** Plant, natural size.

Hab. Linton, North Devon; Mr. R. Withers, 1848.

Obs. The same magnified diagrams are as applicable to this plant

as the above, the only difference being in the greater size and number of spikes, the longer bractea, and in the more stunted growth of *S. Savii*.

It is worth mentioning that the nuts of these two plants are as fully entitled to be termed trigonous, or at the least subtrigonous, as those of *S. setaceus*, but Mr. Babington, in 'British Manual,' ed. 2, says "nuts subglobose;" these nuts are also longitudinally ribbed or striated with the elevated points he mentions.

Fig. 3. Scirpus setaceus (L.).

a. Plant, natural size.

b. Magnified glume, showing the brownish spots upon either side (which spots often differ in size), and the greenish keel and margins.

c. Magnified nut.

d. „ section of ditto.

Hab. Hampton bogs, Bath, Somerset; Mr. T. Dutton, 1847.

Obs. This locality appears to me to afford plants with the spikes more pedunculated than any I have ever before examined.

R. WITHERS.

Bath, February 6, 1850.

Contents of the 'Botanical Gazette,' No. 16, April, 1850.

Abstract of Fries's 'Symbolæ ad Historiam Hieraciorum.' [Abridged translation from the 'Flora.']

Mr. Borrer's Notes on Plants mentioned in the 'Cybele Britannica.'

On the Duration of certain Herbaceous Plants. By T. Irmisch. [Translation from the 'Botanische Zeitung.']

Literature: Muller's 'Synopsis Muscorum Frondosorum,' fasc. v. Contents of various botanical journals.

Proceedings of Societies: [Chiefly a long report of a Monthly Meeting of the Botanical Society of Edinburgh; in reference to which we would observe on the unnecessary puerility of their reporter, in reporting over again things that have been printed and reprinted divers times in the last quarter or half century. It would seem as if the reporter for that Society, if not himself a juvenile student, was at least impressed with the notion that the appropriate proceedings and reports of scientific Societies were to be found in repetitions for the use of students.]

Miscellanea: Herbarium of Dr. Barneoud. Uses of the *Borassus gomutus*.

Contents of 'Hooker's Journal of Botany,' No. 16, April, 1850.

Gramineæ Herbarii Lindleyani; auctore Nees ab Esenbeck. [List of a few species contained in Dr. Lindley's Herbarium.]

Decades of Fungi. By the Rev. M. J. Berkeley. Continued.

Extracts from Dr. J. D. Hooker's Letters. Continued.

Botanical Information: Notices concerning J. C. D. von Schreber. Translated by Dr. Willich.

Notices of Books: Drawings of South-African Plants, by a Lady.

On the Occurrence of Asarum europæum in Wiltshire.

By T. B. FLOWER, Esq., F.L.S.

FOR several years past the *Asarum europæum* has been observed growing at Redlynch, near Salisbury, and having been desirous of ascertaining in what manner its introduction could be accounted for, or whether it might be considered truly indigenous in its present locality, I applied to my friend Mr. James Hussey, who has paid some attention to the botany of the neighbourhood, for information on the subject, when that gentleman most kindly procured for me the following particulars from its original observer, Mr. Popham, who formerly lived at Clarendon, but is now residing at Bagborough, near Taunton.

"It is now, I fear, nearly thirty years ago, when on my way from Clarendon, to call at Newhouse, in passing up the lane that leads from Strandlynch Down to the large chalk-pit at Redlynch, I observed a considerable quantity of a plant growing in the left hand hedge adjoining the lane. As I had never seen it before I gathered some of it, and on turning to a botanical book, I found it was the *Asarabacca*. I afterwards, to the best of my recollection, pointed it out to Matcham, and I think I have heard him say he mentioned it to Dr. Maton. There was a large mass of it, growing in one place only; there was no house near, and the plant had every appearance of growing there naturally. I never recollect seeing it growing wild anywhere else."

From the above statements it will be seen that the *Asarabacca* has now been established in the county for many years, and Mr. Hussey informs me that there is nothing in the locality to make its designed introduction there likely, except its being one of the medicinal plants. It is just possible that by some chance or other it may formerly have struck root there and established itself.

And I will now add that the late Mr. Sole makes a memorandum in his MSS. Flora, dated 1782, that he found the *Asarabacca* in the Duke of Queensborough's woods,* near Amesbury, and should the plant be still growing in this locality, which I hope to verify for myself this spring, I think it will go far towards the probability of its being indigenous in this county.

T. B. FLOWER.

Seend, Melksham, Wilts,
March 28, 1850.

On the Botanical Features of the Great Orme's Head; with Notices of some Plants observed in other parts of North Wales during the Summer of 1849. By EDWIN LEES, Esq., F.L.S.

MR. A. W. BENNETT having recently contributed some "Notes on the more interesting Flowering Plants gathered in North Wales" during a trip in 1849, it may be convenient for me to add a few which that gentleman has not noticed in his tour. We appear to have gone over nearly the same ground, and like cometary wanderers, must, I think, have crossed each other's orbit, if not actually come in contact at some point between Caernarvon and Barmouth. But according to the leaning of botanists towards certain favourite genera, influencing in some degree the spots they look out for, so will be the plants they come in contact with. Mr. Bennett seems to have sought communion with the ferns, and I pushed among the bramble-bushes, *seeking* instead of avoiding thorns; not perhaps the wisest course in this world, since, walk carefully as one may, some symbolical bramble may catch one's coat at a corner, a more irritable detention than that of a button-holder! But leaving the enumeration of the Welsh Rubi to a more convenient season, I will just put myself down at Conway, where a tremendously rainy evening found me at the latter end of July last year.

Strolling into a bookseller's shop after securing quarters at the Harp, (which, by the bye, better deserved the name of *Harpy*), I found a 'Tourist's Guide to the romantic beauties, &c., of the rising and fashionable Watering-places of Llandudno and Great Orme's Head,' which, strangely enough, was to be *given away*. I snapped at this gratuitous bait, but soon perceived that the pretended "guide"

* Now called the Duke of Queensberry's woods.

was but a trap to catch the unwary, and induce them to buy the barren sand of Llandudno, there to sink capital in the shape of bricks and mortar, under the idea that "hundreds" of botanists and ornithologists annually resorted to the rocks of the Orme's Head for the sake of its rare plants, birds, &c. I was rather struck with botany being brought forward in this utilitarian way as a bait to tempt speculators; and not to bely the book, and being willing to run with the stream, determined to form one of the army of Llandudno explorators who were to recompence the speculators in sand; so forthwith ordered a car for the next morning to what Mr. Bennett as well as the "guide" calls the "rapidly rising watering-place" of Llandudno. I would, however, beg to express my hope that it may not rise any higher in *one* sense, as it is very up-hill work at present there, and indeed the new houses or crescent are proposed to be built, if ever, upon the level, sandy beach.

I need not narrate my adventures at Llandudno otherwise than as respects botanical matters, but as a warning to the "hundreds of visitors" resorting here according to the "guide," I may mention that having been induced to take lodgings, I found as much difficulty in obtaining subsistence as in a beleagured town, and one day, after a weary hunt through the place, had the utmost difficulty to obtain even a rasher of bacon! As for fish, they were only obtainable at Conway, and it really seemed as if the natives lived on *wormwood*, such quantities covered every waste spot to their very doors. Or it might have been supposed, could an old Roman have looked in from *Caer Rhun*, whose ruins are not very far distant, that a band of gladiators were in practice here, for such a rank growth of fennel (*Fœniculum officinale*) on the cliffs and acclivities about the village, and on almost every spot about a disused mining-work just above the beach, I never saw before. It might well bring the lines of the American poet Longfellow to mind—

" Above the lowly plants it towers,
The fennel, with its yellow flowers,
And in an earlier age than ours,
Was gifted with the wondrous powers
Lost vision to restore.
It gave new strength and fearless mood,
And gladiators fierce and rude,
Mingled it in their daily food;
And he who battled and subdued
The wreath of fennel wore."

The use of fennel would seem to suggest the introduction of so lofty and conspicuous a plant, and I should doubt its introduction by the hand of Nature here originally, though I admit that it appeared quite as wild as I have seen it on the chalky cliffs of Kent, yet in all cases not very far removed from houses. It may be possibly a very early colonist, since unquestionably some plants have been introduced by the hand of man earlier than others, and none will dispute the extraneous origin of such attendants upon cultivation as *Chrysanthemum segetum* or *Ranunculus arvensis*, though no one can now say when they were not apparent in the furrow. But when a place like Llandudno is in a transition state, it may appear uncertain whether houses have crept up to the original station of the plant, or the plant has escaped from the gardens of the houses. With regard to the common wormwood, no doubt *that* has clung to the Welsh from the very oldest times, and they still cling to *it*, as I saw some old women carrying off bundles to their huts, no doubt to make decoctions and infusions, perhaps very good in their way, as a shrewd miner assured me as his belief that "old woman's was better than any doctor;" and indeed I found out that no surgeon or even apothecary lived in the place. The Welsh, indeed, still trust as much in and pin their faith to the powers of herbs as the English commonly did two centuries ago, and they always fly, when indisposed, to these traditional wound-worts and all-heals. A respectable Welshman of Llandudno, who has seen a good deal of the world, told me seriously that he believed his countrymen would rather die than call in a doctor, that is, a regular practitioner. The old miner I before alluded to (all are miners at Llandudno), when I questioned him on the subject, simply said, yes, indeed, their herbs "was good for everything," and snatching up a plant or two of *Linum catharticum*, that grew near the path, "that, now, good as Epsom salt."

First and foremost of the plants growing on the Great Orme's Head, is the *Cotoneaster vulgaris*. This Mr. Bennett altogether omits, and perhaps could not find, for it grows just in the last place a stranger might expect—on a limestone ledge descending in easy steps just behind a farm house called Ty-na-Coed, some distance above Llandudno village, but looking inland: it may be between 400 and 500 feet high, but the western part of the head is higher. The easy descent of this ledge causes numerous shrubs to grow there, as privet, holly, spindle-tree, and even much hazel. There is some quantity of the *Cotoneaster*, though growing dwarf out of the cracks of the rock: it bore ripe fruit at the time of my visit, and some of the older leaves were beauti-

fully scarlet. This cliff, almost hemmed in by cultivation and flanked by houses, looks so tame when compared with other parts of the Orme's Head, that I had neglected it, and hunted over the northern and western precipices in vain. Returning, however, one morning from the Little Orme's Head, carelessly dangling some plants in my hand, a man rather seedily attired, though respectable in look, accosted me, and taking me, he presumed, for a botanist, asked me if I had found the Cotoneaster; as I had not, he volunteered his guidance, which I of course accepted. Besides the ledge of limestone mentioned above, he took me to another, where the plant grew, but this was also close to the back of a cottage, the cliff indeed bounding the cottage garden. I only state the fact, without making any inference, but it struck me that birds had probably many years ago planted the Cotoneaster on these rocks by transporting their berries. The late Mr. Griffiths, it appears, first gathered the plant here in 1783, but did not name it, which was left for Mr. Wilson, of Warrington, to do many years after.

I can recommend Phillips, the person who took me to the locality of the Cotoneaster, as a very good guide anywhere in the vicinity of Llandudno, and, poor fellow, he needs a little countenance from visitors in a place where anyone connected with the healing art has little chance either to live or die. Phillips has been a chemist, but is now a cattle-doctor, and also waits upon a surgeon who once a week comes over from Conway to see patients, should there luckily be any; and it is Phillips's business "if any's sick and like to die," to keep life in them until the doctor's hebdomadal visit comes round!

I ought in candour to remark that the 'Tourist's Guide,' adverted to as baited with botanists and ornithologists enough to pay for building an hotel at Llandudno, contained a list of "rare plants,"—rather a new feature in a bill of sale, though I should hardly think got up by the Liverpool auctioneer who was to sell the embryo crescent. Perhaps some local herbalist was called in, whose researches I found useful, as directing me to local points, though many of his names were erroneous, and therefore though referring to his list when he mentions an additional locality, I shall not record what I did not myself see.

Thalictrum minus. Very plentiful and luxuriant among broken limestone in numerous spots.

Ranunculus Lenormandi. Near Barmouth, on the Harlech road.

Papaver dubium. Abundant about Llandudno on waste spots, but no other poppy.

Glaucium luteum. Very profuse upon the shore of the bay.

Sisymbrium Sophia. Near Duffin Mill, one mile from Conway towards Llanrwst.

Lepidium Smithii. I can corroborate Mr. Bennett as to the *present* abundance of this plant in Caernarvonshire, but I am inclined to think it a late immigrant. Plentiful on the embankment by the side of the new road to Conway, equally so between Conway and Aber; between Barmouth, Merionethshire, and some farm-houses on the hills; also in Anglesea, near the Bangor Ferry, but Davies has no mention of it in his 'Welsh Botany,' published in 1813, nor have I any previous note of the frequency with which it now presented itself.

Crambe maritima. Finely in fruit on the stony beach near Rhiwleden.

Helianthemum canum. On the upper limestone rocks above Ty Draw. This was in fruit in August, while *H. vulgare* was abundantly in flower.

Dianthus plumarius. Prettily adorning a part of the old walls of Conway.

———— *deltoides.* Interesting and numerous on the slopes of Craig Diganwy.

Silene nutans. Not scattered about plentifully, but only in a few favoured localities, as the Cotoneaster ledges, Little Orme's Head and Craig Diganwy.

Alsine (Arenaria) verna. Among the rocks about the Old Copper Mine.

Lavatera arborea. Several together on the waste bank of the Conway river below Diganwy, but planted probably, or got out of bounds.

Hypericum maculatum. Not uncommon in Caernarvonshire. Very fine and tall among bushes below Pont Aberglasslyn; also numerous near Llyn Gwynant, on the road between Beddgelert and Capel Curig. A well developed species, the floral leaves and sepals only having "pellucid dots." The petals abound with glandular matter running in streaks and accumulating at the ends of them, and this scorched by the sun's rays makes the dark streaks and black dots so conspicuous on the petals. On the sepals there are scarcely any black dots. The capsule is reticulate with glandular lines forming ribs upon it. Mr. Babington gives *H. dubium* of Leers as different from this, but except in the entire and broader sepals, there seems no character to distinguish it, and I should consider it as merely a variety, if entitled to even that distinction. I gathered an *Hypericum* on the mountains behind Barmouth smaller and more delicate in aspect than the general form of *macula-*

tum, and which might well agree with *dubium* as described; but after attentive examination I could trace no permanent distinction. Both had the stem with a membranous border, here and there dotted with black from the glandular matter within it; both had the upper leaves and sepals "with a few pellucid dots," and both had their petals streaked with pellucid glandular lines, much blackened or scorched beneath: the sepals, too, of both had pellucid streaks at their base. The "minutely denticulate" sepals, relied on by Babington as a distinctive character for *maculatum*, arises merely from the membranous border being occasionally broken in outline, and though this is not so obvious in the smaller mountain form, a lens shows the same character more or less obviously. Babington describes the sepals as "reflexed" in both plants, but I find them always patent in flower, and very loosely or carelessly reflex even in fruit.

Hypericum montanum. On the shrubby part of the Orme's Head, and at Bryn Maelgwyn.

Geranium sanguineum. A conspicuous feature of the Orme's Head flora, and beautifying all the adjacent limestone hills till late in September.

——— *columbinum*. Rather plentiful on the stony declivities.

Erodium maritimum. On stone walls about Gloddaeth, and in a lane leading from the beach to Cadir-y-Nain, or "My Grandmother's Chair," an isolated limestone hill east of the Little Orme's Head, crowned with stone fragments like the base of a tower.

Linum usitatissimum. An instance of immigration. Apparently wild among stones on the beach, but I afterwards met with a flax-field at Eglws Rhos.

Rhamnus catharticus. In Gloddaeth Woods.

Medicago lupulina. A small variety of this, the pods, leaves and stem covered with very long hairs, occurred on the turf near Llanudno Bay.

Trifolium medium. On the turf of the Head.

Anthyllis Vulneraria. True, as usual, to the limestone; especially numerous at Bryn Maelgwyn.

Spiræa Filipendula. Abundant on the turf of the rocks, but very dwarf.

Potentilla verna. In crevices of the same ledge where the *Cotoneaster* grows.

Prunus Cerasus. In a hedge on the south side of Bryn Gosol, and between Conway and Llanrwst: perhaps planted by birds.

Potentilla Tormentilla, β . *procumbens* (*Tormentilla reptans*, Linn.)

Spreading profusely in a flagelliform manner, with stems two feet in length, on the embankment along the Conway road, but never rooting at the joints. Leaflets very deeply cut, covered on both sides with long, adpressed hairs. I see no good reason for not admitting this a species, as is done by Linnæus and Sir J. E. Smith.

Rosa spinosissima. This ubiquitous coast rose not only covers the Conway sands in dwarf thickets, but ascends to the very summit of the Orme's Head.

— *Sabini*, β . *Doniana* (*R. Doniana*, Sm.). Surely most distinct from *R. villosa* and its varieties, indeed almost as spinose as the preceding, but with a fruit very different in aspect that can never be mistaken. I am well acquainted with this rose from having sent a living plant to the late Mr. Sabine, at his request, for the Horticultural Society's Garden, many years ago, from Worcestershire. I found it in August this year, growing in a bushy field in Anglesea, by the side of a lane leading up the hill from Bangor Ferry. Davies, who notices many roses in his 'Welsh Botanology,' has no record of this species, and I believe that it has never before been observed in Wales—certainly not so far west as this.

— *micrantha*. A variety I would call *humilis*. This is a curious little rose, with excessively glandulose, doubly-serrated, sharply-pointed leaflets, but with the flower-stalks and calyx-tube quite smooth, as in *R. canina*. Dwarf, with sweet-scented foliage and very small flowers. On the bare limestone ribs of the Little Orme's Head and Cadir-y-Nain.

— *sepium*. This well-marked rose I observed very fine and vigorous at a spot more than a mile from Caernarvon, beyond Pont Seiont, on the Pwlheli road. Petioles and midribs of leaflets excessively crowded with glands, leaflets broadly-ovate, hairy beneath. Calyx persistent, and reclining on the half-ripe, almost globular, setose fruit, the sepals elongated, with leafy points. The broad leaflets crowded together and numerous flower-stalks give it a very different aspect to *rubiginosa*, its nearest affinity. Foliage sweet-scented.

— *villosa* and *tomentosa* are not uncommon in Anglesea and throughout Wales.

Pyrus Aria, β . *intermedia*. The usual form adorns with its silvery foliage the face of many of the most precipitous cliffs of the Orme's Head. A dwarf specimen near "St. Tudno's Cradle," or the Rocking Stone, had its leaves lobed quite as much as the celebrated plant on Castle Dinas Bran, near Llangollen, to which so many authors refer.

Sedum anglicum. Plentiful on Craig Diganwy, indeed general on the rocks of the Welsh Coast.

— *rupestre*. On Little Orme's Head, but not abundant.

— *reflexum*. A favourite adjunct to cottages in Wales, and at Aber whole roofs were mantled with it most singularly, but I have never noticed it wild in such a luxuriant state.

Cotyledon Umbilicus. On Craig Diganwy, but rather sparingly. "Stone walls at Llandudno."

Apium graveolens. On the coast near Gogarth Abbey.

Crithmum maritimum. Great and Little Orme's Heads.

Torilis nodosa. Side of the new road to Conway.

Smyrniium Olusatrum. One of those "domestic plants," which, whether first carried by man or not, mark where his feet have trod, and pertinaciously linger there. At Gogarth Abbey, and most abundant among the shattered ruins on the top of Craig Diganwy, said to be an ancient palace of the Welsh princes, and where Hugh Lupus, Earl of Chester, afterwards built a castle, at last taken and ruined, and not again occupied after the building of Conway Castle by Edward I. This fortress well deserves a visit from the botanist who can take it on foot on his route from Conway to Llandudno.

Rubia peregrina. Rioting in the hedges about Gogarth.

Sambucus Ebulus. At Pont Dolgarrog, on the Llanrwst road.

Inula Conyza. About Bryn Maelgwn and Gloddaeth.

Achillea Millefolium. A pretty dwarf variety only two or three inches high, the leaves, stem, and even the scales of the involucre covered with long, woolly hairs, occurred on the singular trappoid hill of Bryn Gosol, north of Diganwy. If varieties are to be noted, this deserves equal mention with the variety *Cambrica* of *Solidago Virgaurea*.

Antennaria dioica. Plentiful on turf of the limestone ridges above Tydraw farm, south of the Cotoneaster ledge.

Senecio viscosus. Among stones on the beach between Llandudno and the Little Orme's Head. I only observed it in one spot where there were many plants truly characteristic from their viscosity, being so encrusted with sand and black mould blown upon them by the winds, that they seemed at first view like some strange African *Mesembryanthemum*, the florets spreading out and much more specious than in *S. sylvaticus*. This is not mentioned by Davies in his 'Plants of Anglesea.'

Carduus tenuiflorus. Covering the embankment by the Conway road, close to Llandudno, in the greatest profusion. It generally oc-

curs as a weak, unbranched plant, but here it had assumed a height and magnitude rivalling that of *Onopordum Acanthium*. Equally plentiful and luxuriant on the side of the road between Conway and Aber, parallel with the railway. In both cases doubtless seeds lying dormant beneath the ground had been turned up by the road operations, and on the fresh, rank soil had grown gigantic accordingly.

Silybum marianum. A colony of the "holy thistle," tall and rank, was flourishing on the rubbish of the lower abandoned mine at Llandudno; one of those gypsy plants that never stay long in a place.

Cychorium Intybus. On the borders of new cultivated ground excessively abundant at Llandudno, but not, I think, indicating a limestone soil, as Mr. Bennett suggests, for on the limestone itself I did not observe a single plant.

Tragopogon minor. On the turf near the beach; and I notice this to remark that the *pratensis*, as characterized, does not occur.

Helminthia echinoides. Plentiful about Eglwys Rhos.

Lactuca muralis. On the shady side of Cadir-y-Nain. Unnoticed by Davies.

Hieracium boreale. In a moist dingle of the Orme's Head, and more plentiful in a deep lane leading from Bryn Gosol farm.

Ligustrum vulgare. On the same limestone ledges as the *Cotoneaster*. Mr. Babington in his Manual only gives "Thickets in the south of England," as if its range was thus restricted; but I have observed it as generally occurring on the sea cliffs both of North and South Wales. Yet, like other berried shrubs, it is no doubt much dispersed by birds.

Chlora perfoliata. More abundant than I ever before observed it all about the sides and base of Bryn Maelgwyn, where the limestone is disturbed by the intrusion of igneous rocks. Not in Anglesea.

Erythraea pulchella and *latifolia*. The former both at Llandudno and Barmouth, the latter at Barmouth only.

Gentiana Amarella. Abundant on the declivities of the Orme's Head and Bryn Maelgwyn. Equally plentiful at Barmouth. Yet Davies says "very rare" in Anglesea.

Convolvulus Soldanella. Shores of Conway Bay.

Echium vulgare. Excessively abundant on the edge of Llandudno beach.

Solanum Dulcamara. Shore of the Conway—perhaps the *γ. maritimum* referred to in Mr. Babington's Manual.

Hyoscyamus niger. Plentiful about the base of the Little Orme's Head. Phillips told me he had gathered quantities of it here for a

Conway druggist in former years, but the demand for it was not so great now.

Orobanche Hederæ? On a patch of ivy midway up an inaccessible cliff on the north side of the Head, I observed some tall specimens of an *Orobanche* very conspicuous, certainly this or *O. minor*; but though I summoned the garrison, and both Phillips and myself cannonaded the fort from above and below, not without risk to ourselves, it was all in vain. We indeed disabled a few prominent individuals, but could make no prisoners. A friend, however, showed me from Conway Castle what appeared to be *O. barbata* of E. B. S., and now considered by Babington the same as *O. Hederæ*, and this was most probably the plant among the ivy on the cliff. This same *barbata* I have gathered from among ivy on St. Catherine's Isle, Tenby, and (however the nomenclature may be at last) it occurs generally throughout North and South Wales and Monmouthshire, especially among ivied ruins. The list in the 'Guide' mentions *O. minor* (?) as growing on the ruins of Conway, Diganwy and Marl.

Digitalis purpurea. I mention this to remark the partiality some plants evince to certain soils, and their repugnance to others. Not a specimen of *Digitalis* appeared anywhere on the limestone hills or about their bases; but when I began to ascend the trappoid rock of Diganwy, there at once appeared my old friend, reminding me of its similar position on the sides of the eruptive Malvern Hills.

Veronica spicata. On the Orme's Head sparingly, but especially plentiful on the limestone ridges extending from the Little Orme's Head to beyond Bodscallan, opposite Conway, including Cadir-y-nain and Bryn Maelgwyn. A portion of these heights is included within Mr. Mostyn's Park, and thus protected is "intensely blue" with the *Veronica*.

Salvia verbenaca. Rather numerous on the declivities about Llandudno.

Origanum vulgare. Abundant everywhere on the limestone.

Calamintha officinalis. On dry banks about the Lower Mine.

Scutellaria galericulata. In Conway Marsh.

Marrubium vulgare. On the dry declivities of Great and Little Orme's Head.

Verbena officinalis. Another of those dogged plants that can hardly be said to be wild at all, so closely do they stick to the skirts of mankind, as if determined to be domesticated. This has druidical fame, and here it still stops on the slopes below the stone of power. But it is yet valued medicinally, and I possess a pamphlet detailing

hosts of cures of various diseases from the alleged wonderful properties of the vervain.

Primula veris. I mention this as plentiful in various places on the Orme's Head, where no primrose was apparent, and I have noticed the same thing on St. David's Head, in Pembrokeshire.

Samolus Valerandi. In watery ditches on Llandudno Common. Abundant near Barmouth, towards Cors Gochno.

Statice spathulata. Plentiful on the shore of the Conway river.

Polygonum Raii. On the sands below Craig Diganwy.

Mercurialis annua. Dr. Bromfield, in his interesting remarks on the Hampshire plants, suggests this as "more deserving of the asterisk" than many others that have it. I have noticed it, however, on various parts of the coast both of North and South Wales. At Barmouth, Merionethshire, it is plentiful on the sands edging the marshes inland in spots where no gardens could ever have been, and where it is unlikely it could have been introduced any more than the other littoral weeds with which it grows. Certainly, like *Solanum nigrum*, with which it is often in company, it is fond of intruding, if it can, upon olitory ground.

Parietaria officinalis. Excessively plentiful about the Orme's Head at present, but I would not feel certain that it was always so; as pellitory-of-the-wall, time-honoured still, was one of the category that the herbalist would have been sorry not to have had easily within reach.

Salix fusca, var. *argentea*. In one place on the Orme's Head, where, in a broken ravine, a spring lazily weeps down among masses of *Eupatorium cannabinum*, and other rank aquatics, to the sea.

Taxus baccata. An indigenous mass on Bryn Maelgwyn, and numerous isolated trees pushed obliquely by the wind from the sea about Eglws Rhos.

Juniperus communis. On many of the rocks of the Orme's Head to the very summit westward, but procumbent on the limestone, the boisterous gales not permitting it to rise upward. Yet as most of the roots are large and of great age, it is easy to imagine that the now "white pow" of the promontory had in earlier times a more verdant if not grove-like aspect. The original upright junipers have evidently been cut down, but when scattered in verdant masses, as in druidical times, must have rendered the upper stories and stone circles on the cliffs far more sheltered places of observation than they are at present. On "my Grandmother's Chair," an isolated limestone hill near Gloddaeth, some upright clumps of juniper still remain on the

N.E. side, rising to a considerable height. Davies could find no juniper in Anglesea when his Catalogue of the plants of that island was published in 1813, and he only says "I venture this as *once* an inhabitant, from the name of a place, *Cefn-y-Terywen*, the juniper bank."

Tamus communis. At Bodscallan, near Eglwys Rhos, but by no means of common occurrence in North Wales.

Orchis pyramidalis. In Gloddaeth Wood, among bushes within Mr. Mostyn's grounds, not far from the statue of Hercules.

Spiranthes autumnalis. Quite profuse in the moist sand edging the inland marshes at Barmouth, loading the morning air with fragrance.

Epipactis ovalis, Bab. In crevices of the limestone rocks above Tydraw, on the Orme's Head, southward of the Cotoneaster ledges; also under similar circumstances in the cracks of "my Grandmother's Chair," near Gloddaeth. Some of the plants were hardly more than four inches in height, and many scorched and abortive from their peculiarly exposed position on the bare rocks, but rooting very deeply, and the withered stems of former years still remaining. Stem, germen and bases of the bracts excessively scaly.

I must here close my list, as I was rather too late in the summer to be able to attend much to the grasses, and merely remarked that *Triodia decumbens* formed a great portion of the turf on the declivities of the Head, while *Avena pubescens* appeared on almost every rock. I observed *Arundo Epigejos*, too, very abundant and fine in Gloddaeth Woods. Of ferns, except *Asplenium Trichomanes* and *A. Ruta-muraria*, I really saw none on the Orme's Head, and the only *Equisetum* that occurred was *E. palustre*, β . *polystachion*, growing among masses of *Rubus cæsius* on the Conway sands.

If in the above enumeration I have duplicated observations already made, or noticed plants of frequent occurrence or supposed to be so, that the rarity-hunting botanist would pass with disdain, still I hope that in so remote a corner, which in general botanists only dash across in their summer cometic career, the mention of what I saw growing at the time I was there in residence may not be quite useless. Indeed, it appears to me that a periodical report of the present existence of plants in a remarkable locality, like the peninsula of the Great Orme's Head, is advantageous in a referential point of view. Could my record be compared with one made a century ago, I doubt not that some plants would be found to have disappeared, and some in my list would appear as new inhabitants. Hence trustworthy record of plants within allotted bounds and seen at particular periods, must

be ever useful. In fact, just at the time I was at Llandudno great changes were making in the neighbourhood, and further contemplated. The whole of the marshy flat called Llandudno Common was being enclosed and drained, pools dried up, deep ditches made, piles of turf were burning, and at night the long lines of lurid flame gave the idea of an hostile army ravaging the country. And truly it was so as regarded the botanist. Phillips told me that the bog-bean (*Menyanthes trifoliata*), that he had so often gathered for medicinal purposes, was gone, and every marsh plant had got notice to quit. One solitary *Osmunda regalis* I saw, and that appeared to be the last remnant of boggish times. Nature was being sternly expelled at the fork's point, and if the threatened crescent should rise on the sands, and young Liverpool crown the old Head with villas, perhaps at last even the fennel, the vervain and the wormwood may disappear with the old houses and Celtic inhabitants.

EDWIN LEES.

Henwick, near Worcester,
April 10, 1850.

Curious Species of Cypripedium.

At the March Meeting of the Horticultural Society, Mrs. Lawrence exhibited a specimen of *Cypripedium caudatum*, the first that had flowered in cultivation. The colour of the flower is a sickly yellow, but the lateral petals are brown and enormously elongated, forming a long narrow pendant tail on each side: from the first opening of the flower these tails had continually and rapidly increased in length, and no opinion can be formed as to the length they will ultimately acquire: at the time of exhibition they were eighteen inches long. Professor Lindley remarked that other species of *Orchidaceæ* possessed similar appendages, and that those of a species found on the Cordilleras, near Lake Maracaybo, were still longer than in *C. caudatum*.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 854).

Quercus Robur. In woods, thickets, copses and hedges throughout the county and Isle of Wight; most abundantly. This is the common oak, not only in Hants, but I believe in most of the southern and eastern parts of England.

———— *sessiliflora.* In similar places with the last, but much more rarely, although I fear scarcely distinct as a species from the foregoing. In the sandy soil of Bordwood Copse, near Newchurch, where it was pointed out to me by Mr. Borrer during an excursion with that gentleman and Dr. T. Bell Salter, in August, 1844, growing with *Q. Robur* in about equal proportion. Since observed by myself in other parts of this island. A tree or two on the margin of Quarr Copse, by the side of the Newport road. In East Standen Copse, near Newport. A very fine round-topped tree in Elm Copse, betwixt Calbourne and Shalfleet. In a small hilly wood of scrubby oak bushes belonging apparently for the most part to *Q. sessiliflora*, close to Fareham, on the north side, overlooking the town, and where I also found *Pyrus torminalis*, but not in any abundance, July, 1849. Observed near Empshot, and in other parts of the county this year. Var. β . Leaves downy underneath. Durmast (*quasi* dunmast) oak, the acorns being sometimes of a reddish or dun colour, as I have found them in this island near Shalfleet. In the New Forest; Martyn. A puzzling species, if such it be, not always very well marked, but distinguishable in its most defined form from *Q. Robur* by its usually larger and broader, flatter and more regularly spreading or imbricated leaves, which are distinctly petiolate (the petioles yellowish or reddish), in general of a brighter, more shining green, sometimes, however, dark green, for the most part obovate rather than oblong, more regularly and evenly sinuate, the sinuses more exactly opposite and inclined to acuteness at bottom rather than to be rounded or obtuse; by a greater massiveness of foliage and compactness of the whole tree, which is, I think, more disposed than *Q. Robur* to assume a rounded head; by its more horizontally spreading, less tortuous branches and spray, larger-sized leaf-buds, and essentially by bearing acorns that are either quite sessile, or wholly or in part on short, erect, stout peduncles, and in general more numerously clus-

tered. The bark is thought to be lighter coloured, and the leaves more apt to be persistent through the winter; I think I have remarked the former to be smoother on young trees, at least than in *Q. Robur*.* The acorns of the present species are rather ovoid than oblong, the cup approaching to one half the entire length of the gland; they are stated, moreover, when ripe, to have very generally a red or pinkish colour. All these characters are liable to great exception, fluctuating so variously between those laid down for the two species as fairly to induce suspicion of their being really distinct as such. Still, as Mr. Bree (Loud. Arbor. Brit. iii. p. 1738) truly observes, "though there are sessile oaks bearing fruit on peduncles, and pedunculated oaks bearing almost sessile fruit, there is yet a certain indescribable something about the trees, by means of which I can always distinguish each, without minutely examining either the acorns or the leaf-stalks." The present is undoubtedly the handsomer tree of the two, with a certain approach to the sweet or Spanish Chestnut in aspect, and it is said in the grain and quality of the wood likewise, having, it would appear, been commonly mistaken for that of the chestnut in some of our oldest edifices. This species approaches in the regularity of its growth, flatness and even sinuation of the leaves to the American White Oak (*Q. alba*), the nearest representative on that continent of our British oak, and scarcely inferior to it in the value of the timber it yields. The characters distinguishing *Q. sessiliflora* which I have found most constant, are those of the fruit and leaf-stalks; for although the acorns are often elevated on a very distinct peduncle, I have never seen the latter anything like so slender and elongated as in *Q. Robur*, notwithstanding that this last sometimes bears its acorns on an abbreviated stalk, very similar to the occasional one of *Q. sessiliflora*. The leaves in *Q. Robur* are most commonly very unequal at the base, with so deep a notch or sinus on one or both sides of the petiole as to appear auricled; in *Q. sessiliflora* the base of the leaf is more equal, and the notch, if any exists, very shallow. The leaves in *Q. Robur* usually lie in planes variously inclined to one another, and this, together with their wavy surface, convexity, and irregular sinuation, combine to give an air of scrubbi-

* The woodmen here talk of two kinds of oak, which they call the black and the white oak, but the only intelligible difference I could extract from their accounts is, that the twigs of one float, whilst those of the other sink, when thrown into water! Some of the more observant, however, amongst them distinguish more clearly our two species, the *Q. sessiliflora* they call White Oak and Maiden Oak, as I have repeatedly ascertained.

ness to the foliage as contrasted with the neater appearance in this respect of *Q. sessiliflora*, in which the leaves are remarkably flat, radiating, and lying over each other in a horizontal position and in parallel planes, by which it may be distinguished at a great distance from its congener. Whether *Q. Robur* and *Q. sessiliflora* be accounted distinct or not, I can by no means agree with Fries (Corp. Flor. Provin. Suec. p. 144) in thinking that the differences between the two are owing to poverty of soil, as he confidently affirms.* From what we know of the mutability of character in *Tilia* and *Ulmus*, as also in *Salix*, *Populus* and other Amentiferæ,† we should be cautious in admitting to specific distinction a tree which in many of its states does not always present very definite limits to the marks separating it from *Q. Robur*.

* *Q. sessiliflora* seems to abound most in the hilly districts of the north of England and in Wales, and there to reach its fullest dimensions. At Boultonbrook, near Presteign, Radnorshire, the seat of Sir H. J. Brydges, Bart., are the finest, most characteristic trees of the sessile oak I have ever seen, almost rivalling the Spanish Chestnut in beauty of foliage, and of noble magnitude and height.

† The word Amentaceæ employed to designate the natural order of ament-bearing plants is manifestly incorrect, and nearly as bad as Graminaceæ for Gramina. The termination in *aceæ* (which it would be highly desirable, for the sake of that neatness, precision and uniformity, at once useful and ornamental in scientific nomenclature, should be unanimously adopted instead of the vague, arbitrary and often ungrammatically-constructed and mixed terminations of De Candolle, still in partial use amongst botanists) does, or ought to express, the relations which certain groups of plants bear to some typical genus concentrating in itself the leading or most prominent characters distinguishing such groups in the aggregate. Thus, *Violaceæ* implies a group, family or order of *violaceous* or violet-like plants, not violets themselves, but allied to or closely resembling them, having most of the peculiarities of form, structure, appearance, and properties of the genus *Viola*, which serves as a type or standard of comparison to judge all its allies by. But to apply the term *Graminaceæ* to designate the order or family of Grasses, or *Palmaceæ* that of Palms, as has been inconsiderately done in some instances, at once destroys the entire force and meaning of the Latin adjective termination in *aceæ*, which has a comparing efficacy, that an incorrect application of it wholly stultifies. For as there is no such genus as *Gramen* or *Palma*, these two natural orders represent themselves, and are not typified by any one genus of Grasses or Palms, to which all the remaining genera composing these orders may be referred as a standard of comparison. To compare a thing to itself is obviously absurd, because every comparison necessitates the existence of two objects to be compared; to call the Grasses and Palms, therefore, *Graminaceæ* and *Palmaceæ*, is only to declare them to be grass-like and palm-like plants, or in other words, like themselves, that is, Grasses and Palms, which is in fact a comparison only in sound. The proper designation of these orders should be *Gramina* and *Palmæ*; for *Gramineæ* (*plantæ gramineæ*) and *Palmeæ* (*plantæ palmeæ*) are only preferable to *Graminaceæ* and *Palmaceæ* as being better Latinity. In like manner Amentaceæ is highly objec-

Corylus Avellana. In woods, copses and hedges everywhere most abundantly; often constituting the main part of the undergrowth in our hilly copses, flowering here usually in February and sometimes in January.

?*Carpinus Betulus.* In woods, thickets and hedges, mostly in damp clay soils; very rare? Not found wild in the Isle of Wight, where it is only seen in plantations. In a wood abutting on Titchfield Common and in a copse by Down Lane, near Fareham; Mr. W. L. Notcutt. I can hardly believe the Hornbeam not indigenous in Hants, although I have as yet only the above stations to record for it in the county, and regarding which Mr. Notcutt speaks with some hesitation in a letter I lately had from him. The tree abounds in some parts of Sussex, as near Hurstperpoint, and in woods at the Old Roar, near Hastings. Its absence as a native production in this island is not explicable on the ground of deficiency of suitable soil, as we abound with the stiff clay in which it delights. It will probably be found in several parts of the county if searched for in damp, tenacious ground.

Taxus baccata. In woods, hedges, rocky places, borders of fields, and on open chalky downs, very abundantly over a great part of mainland Hants, mostly in elevated situations in the interior; rarer in the lower and flatter country or along the coast. Scarcely indigenous to the Isle of Wight. A few small trees occur on the slope of the down

tionable, inasmuch as it implies an order of plants *like* aments or catkins, which is equally far from the truth and the sense intended to be conveyed in the word, whereas Amentiferæ at once declares its own meaning and the true nature of the order, which is composed of ament or catkin-bearing plants, just as Coniferæ is of trees bearing cones. In adopting Amentiferæ, too, we secure correctness and uniformity at the same time, as the termination now accords with Coniferæ, Cruciferæ and Umbelliferæ, which, had consistency anything to do with the barbarous, mixed nomenclature of the natural orders still used by many, should have been Amentaceæ, Conaceæ, Cruciaceæ! Umbellaceæ, or Amentæ, Coneæ, Crucieæ, Umbelleæ! words, it must be owned, that would have been a disgrace to botany. But the fact is, that the termination in *aceæ* adapts itself with singular felicity to all the natural orders deriving their names from a typical genus, whilst to the few that take their appellations from the form or structure of certain parts, the ending in *feræ*, implying bearing or producing, attaches with equal gracefulness and perspicuity. Rigid grammatical correctness is not to be expected in modern scientific nomenclature, but the uniform adoption (with the above exceptions) of the ordinal termination in *aceæ* would secure it oftener than the arbitrary and capricious substitution of the endings in *æ*, *niæ*, &c., which are only a burden on the memory to recollect, and are often wholly unsuited to the structure of the root to which they are attached, as *Violariæ*, where the *r* is quite out of place and extraneous.

above Nunwell, the only spot in the island where I have seen the yew even apparently in a state of nature, but I suspect from their limited number and vicinity to the house that they were planted there long ago. Everywhere for miles around Winchester, on the downs and in woods, at Compton, Hursley, Farley, &c. Extremely common on the high downs along the London and Portsmouth road. Very frequent in Froxfield Hangers and other elevated and steep woods about Petersfield, with its common associate the beech. Very large trees, some evidently of high antiquity, occur in the woods and chalky slopes about Hambledon. Extremely frequent in most of the northern parts of the county, but I think much less so, if not decidedly rare, in the south-western part, in the New Forest, and Christchurch hundreds. The yew is a tree so frequent as to be a beautiful and distinguishing feature in the upland scenery of Hants, and some of the adjacent counties, as Sussex, Surrey and Wilts, its deep green, nearly black foliage finely contrasting with the brighter verdure of the beech, oak, and other deciduous trees, whilst in the picturesque form of its wide-spreading, depressed head, and short, gnarled, sturdy, cinnamon-red trunk, it may vie with the cedar of Lebanon itself. The yew is commonly seen with us as single trees, irregularly dotting the landscape, sprinkled over the open downs, or rising amid the hedge-rows or from the precipitous face of some hanging wood, but it occasionally forms groves by itself of small extent, the most remarkable of which that I am acquainted with is the yew wood at Kingley Bottom, near Chichester, much resorted to in the summer by parties of pleasure for its picturesque beauty and singularity. The yews on our downs and in the woods are mostly permitted to flourish unscathed by the axe, notwithstanding the value of the timber to the cabinet maker, and hence many noble specimens may be seen in the wild state, whilst on the main land of the county there is hardly a parish church of ancient date without its venerable yew in front of the door or porch, some of which churchyard trees are of extreme age and colossal dimensions. The great yew in Selborne churchyard, one by no means of very unusual size, was found to measure a year or two back $24\frac{1}{2}$ feet in circumference at four feet from the ground. The very ancient yew in the churchyard of South Hayling, in Hayling Island, is, to the best of my recollection, a still larger tree than the one at Selborne, and doubtless others may be found in the county exceeding both these in dimensions. It is not a little remarkable, that whilst we find a yew planted and religiously preserved in front of nearly every ancient parish church in the county, I cannot call to mind the existence of this

tree in any one of the churchyards belonging to the thirty parishes into which the Isle of Wight is divided. The antiquarian reader may possibly be able to account for this fact.

Juniperus communis. On dry hilly places, chalk downs, also in woods and copses; frequent in various parts of the county, but scarcely wild in the Isle of Wight. I found, March 20th, 1845, a solitary, very dwarf bush of the common juniper on the slope of the down above Nunwell, which, like the yew it accompanies, may possibly be native there, but until discovered elsewhere in greater quantity I do not feel justified in considering it as indigenous to the island on the strength of a single specimen. In Bordean Hanger and about Bordean Hill, where I have found this shrub rising to ten or twelve feet on the chalky slopes. Common on the downs about Petersfield, on Oxenbourne Down, &c. About the Farley (Horse) monument, in Parnell's or Parnholt Wood, and in most woods in that vicinity. Abundant in the higher, more open parts of Froxfield Hangers, and in woods at Hambledon. Plentiful at Highclere, in the park, on Beacon Hill and chalk downs about it. Popham Beacon, near Andover Road station, abundantly; Dr. T. Bell Salter! On Abbotston Down; Mr. J. Forder!!! I find it profusely on that beautiful elevated tract, along with large bushes of *Rhamnus catharticus*, *Ligustrum vulgare*, &c. Warnford; Rev. E. M. Sladen. On the down at Up Hurstbourne; Mr. Wm. Whale. On Danesbury Hill, near Testcombe Bridge, and Forest of Bere; *Id.* Unquestionably in innumerable other places in the county. The absence of this plant and the yew from the Isle of Wight, abounding, as it does, with tracts perfectly similar to those of the mainland, so productive of both these trees, is a singular feature in its flora.

‡*Pinus sylvestris.* Naturalized extensively in the south-west of the county, and probably in other parts, from plantations, chiefly on sandy or boggy heaths and moors. In plantations of immense extent about Ringwood, and betwixt Poole and Christchurch, as at Bournemouth, over tens of thousands of acres of moor, heath and bog, so as perfectly to present the aspect of the pine forests of Scotland. The species now maintains itself by self-sown seeds, which come up abundantly everywhere, even in the wettest morasses, and are gradually spreading the trees over the county, so that were the plantations to be left to themselves, and the original firs allowed to die out, the existence of the species would be perpetuated by purely natural means. It seems therefore absurd any longer to exclude the Scotch fir from the catalogue of Hampshire plants, as, although unquestionably intro-

duced at the beginning, the tree is as completely naturalized as any aboriginal of the county, fully as much so as are those species to which we never hesitate assigning a place in our general and local floras, as *Acer Pseudo-platanus*, for example. Besides in the enrolment of the Scotch fir amongst the species of our existing flora, we are perhaps only reinstating a primæval but extinct inhabitant of South Britain in what was once probably its native soil, as North Britain indisputably is at the present day; since I believe trunks and cones of this species have been dug up in the bogs of the south of England, as well as in those of Ireland, the vestiges of anciently existing pine forests.

Pinus Pinaster, Ait.? *P. maritima*, D. C.? Naturalized abundantly with *P. sylvestris* in the dry, sandy soil of Bournemouth, and on the turfy heaths and peaty, boggy moors betwixt Christchurch and Poole. The immediate vicinity of Bournemouth is at this time a perfect pine forest, both species forming in some places on the crests of the sandy cliffs above the beach, low, dense thickets, in others rising into groves of taller trees, exactly recalling to mind the natural pine woods of the European and American continents. There is little doubt that if left to themselves these two trees will establish themselves throughout the heath district of the Poole basin, as it is not only in the immediate vicinity of the original plantations that the species occur spontaneously, but they are beginning to dot the moorlands and bogs with vigorous young pines of both sorts at wider distances from their artificial places of growth. The cones of the pinasters when ripe discharge their seeds elastically with great force, and the seedlings that spring from them are called by the woodman at Bourne "self-setters." The wood, they say, of *P. Pinaster* is inferior to that of the Scotch fir, which in this part of England is used only for temporary railing, fencing, and other coarse purposes. With Mr. Woods (*Phytol.* iii. p. 261) I do not see how a place can be consistently refused to *P. sylvestris* and *P. Pinaster*, whilst many other plants, even less perfectly naturalized, are admitted without hesitation into our British flora. The plantations are of nearly fifty years standing, so that there has been time enough to test the self-propagating and self-preserving power of both these pines. I am not sure that I am correct in quoting *P. maritima*, *D. C.*, as a synonym of *P. Pinaster*, *Ait.*; if I am, the latter must doubtless have a prior claim to adoption; neither am I certain that our pinaster and the *P. maritima* so abundant in the Landes, or sandy maritime plains betwixt Bordeaux and Bayonne, are the same species, although they appear to me from

recollection of the latter to be identical, but the different species of *Pinus* are very difficult to recognize apart from each other, and there are several long-leaved pines in Europe and America inhabiting the low grounds closely allied to one another. I have heard or read that the maritime pine of the Landes is not indigenous there, but was planted in the first instance for the purpose of binding the loose sand of that singular region, where the peasantry walk about upon stilts, and has since become naturalized. In this part of the south coast we are on the meridian of the Landes, and assuming our pinaster and the *P. maritima* of Bordeaux to be identical, we may well conceive it possible for the tree to be so far able to accommodate itself to a difference of latitude amounting to about six degrees, as to establish itself spontaneously here as there, when introduced into a soil equally adapted to its nature.

Paris quadrifolia. In shady woods and copses; not found in the Isle of Wight, but apparently of frequent occurrence in mainland Hants, at least on the chalk and in the interior of the county; seemingly rare, if found at all, near the sea, which is perhaps the cause of its absence from the island, the climate of which is too maritime for this rather continental or Germanic plant. Wood at Bordean Hill; the Misses Sibley!!! Langrish; Miss G. E. Kilderbee!!! Parnell or Parnholt Wood, near Farley, a few miles from Winton; Miss A. Yonge and Dr. A. D. White!!! Abundantly in woods on the chalk, as about West Meon, Winchester, &c.; Mr. Wm. Pamplin. Wherwell Wood, near Andover; Mr. Wm. Whale! Wonston; Miss L. Legge! Henwood, W. Meon, and wood near Rotherfield; Miss L. Sibley. In the Church-litten Coppice, Selborne; Rev. G. White. In the sloping wood nearly facing the church, at Appleshaw, in which *Lonicera Caprifolium* grows; W. A. B. Very many more stations doubtless exist for the *Paris* besides these just enumerated. With us this plant rather affects the uplands than the lower flat country, and where it sometimes has the wild Columbine (*Aquilegia vulgaris*) for its associate in the more elevated of its localities.

Tamus communis. In woods, groves, thickets, hedges and borders of fields, extremely common throughout the county. Abundant in the Isle of Wight, and in nearly all parts of mainland Hants, but I think of diminished frequency in the south-western or New-Forest district, as about Lymington, Lyndhurst, Ringwood, Christchurch, &c., owing, perhaps, to the nature of the soil, which is chiefly the diluvial of the Poole basin, on which some other species, as *Acer*

campestre and *Bryonia dioica* become comparatively unfrequent.* Assuredly one of the most beautiful and graceful of British plants, looking like some tender native of a warmer clime that has wandered to our less genial shores courting their colder breezes. Most of the devotees of Flora confess to an exclusive partiality for some one production of her creative hand indigenous to the country of their birth. Linnæus was fascinated with the symmetry (mother of all beauty as he styles it) ever present to his vivid perception of loveliness in form, in the blossoms of the little northern *Trientalis*, that "*flos gratissimus*" whose praises he has celebrated (I had nearly said sung) in his truly poetical work the '*Lapland Flora*.'† Smith describes the *Water Avens* (*Geum rivale*) in terms of glowing admiration, which lead me to conclude that pretty plant to have been a prime favourite with the amiable editor of '*English Botany*': and if it be allowable in the author of these humble Notes to avow a predilection felt by such master minds for one native plant above the rest, he would point to the *Tamus* as the object of his especial preference. No other indigenous vegetable comes up, I think, in elegance of habit to the Black Bryony, as it displays itself on many a tall hedge-row, or along the margin of some way-side thicket; its twining stems concealed beneath the closely overlapping, prone directed or shelving, brightly varnished leaves of firm texture and translucent green, their long, tapering points, wavy margins and finely rounded bases, seeming to undulate and curl and glide upon each other with simulated motion, as of a swift and eddying stream descending in an easy, graceful curve from

* In this part of England the *Tamus* is commonly called Bryony, sometimes Isle-of-Wight Vine, and confounded with the true and almost equally abundant plant of that name, *Bryonia dioica*, whilst to many it is a nameless, though familiar object. Its pretty designation of Our Lady's Seal, given it in a more poetic age, has become universally obsolete except in books, and was perhaps never a vernacular one in this land, nor can we, in these matter-of-fact, prosaic times, hope to see that name revived, or a bard arise to give it currency in song. Possessing neither fragrance nor the florid charm of colouring, the simplicity of its starry flowers and the grace and elegance of its polished foliage, unrivalled by that of any other native plant, can win the admiration of such alone for whom form has equal or superior attractions over scent or brilliancy of hue. My friend the dowager Lady Erskine tells me that the Black Bryony is called in Wales *Afal Adda*, that is, serpent's meat, and that it is a prevalent idea in the principality that those reptiles are always lurking near the spot where the plant grows.

† "*Nescio, quænam gratia floris (Trient. europ.) adeo percellat oculos, ut fere effascinare videatur visu contemplatorem suum; forte a symmetria, pulchritudinis omnis matre!*" *Fl. Lappon.* p. 104.

its source, and widening by degrees along its downward course. From the great beauty of the broad, rich green foliage, which, being slightly fleshy or succulent, has a peculiarly cool, refreshing effect, few plants are better suited for trellis-work or covering arbours than *Tamus communis*, as it climbs to a considerable length, and affords a good shade. The staminate plant, as being more elegant in flower, should be chosen in preference to the pistillate, or both grown together for variety, and were it not a native, and therefore despised and disregarded, it would probably have been long since as much a favourite in British gardens as its near relative the Hottentot Bread (*Testudinaria elephantipes*, *Tamus elephant*. L'Her.) of the Cape, is in our conservatories, since it is quite as handsome as that, with the additional advantage of being perfectly hardy. I once recollect to have seen in America, in a part of that continent where the species was *not* found wild, our common Bittersweet (*Solanum Dulcamara*) used for covering a dead wall, and very gracefully it fulfilled the commission imposed on it by the planter. Were this species not to be seen in almost every hedge, and had it but come to us like the Box-thorn (*Lycium barbarum*), absurdly called Tea tree, from a foreign land, it would have supplanted that formal shrub, to which it is so closely allied, by the greater freedom of its growth and much handsomer foliage.

The order Tamaceæ is quite superfluous, not admissible even as a sub-order or tribe (Tameæ) of Dioscoreaceæ. *Tamus* is in fact an intermediate genus connecting the latter order with Smilaceæ, but more closely allied to the yams than to the Sarsaparillas, differing from *Dioscorea* chiefly in its baccate fruit, and globose, not compressed seeds destitute of a wing or border. But *Testudinaria*, which has the most intimate relation possible to *Tamus*, and was even once referred to that genus, has the fructification of *Dioscorea*; and the pulpy pericarp of *Tamus* covers a thin membranous capsule of three cells with, imperfect dissepiments from the middle of each cell, quite unconnected, or but very slightly attached to the pericarp, from which it may readily be squeezed out entire when ripe, or dissected out when green. Our *Tamus* might indeed be properly called wild or English yam (for to the Bryony it has no botanical relation whatever), so much does it resemble that tropical esculent in its root, leaves, and general structure, and I have every reason to believe in its edible and nutritive qualities were they fairly put to the test of experiment. The root is very large and thick, consisting, like the yam, of irregular fusiform or digitate tubers, beset with wiry fibres; externally light brown

or ash-gray and wrinkled, very white, soft and fleshy within, as easily sliced as a turnip, and abounding with an acrid, clammy juice. Apart from this acrimony, which cannot compare for intensity with that of Cassava and the various esculent Araceæ, the root has neither bitterness nor any other unpleasant taste, nor, though so large and enduring, is it at all tough, woody or stringy in texture, being apparently purely farinaceous, and composed chiefly of starch, with probably a portion of gluten. I have the best reason for believing that were the roots dressed like yams, by roasting them in hot wood-ashes a sufficient time to dissipate their acrimony, as in the latter, they would prove no way inferior to that vegetable.* Had I the facilities for trying the experiment I should certainly do so, but partial failures must be anticipated before the exact degree and duration of heat to be applied could be ascertained, and the experience necessary to ensure uniform success in the operation acquired. That there is reason in roasting a yam as well as an egg there can be no doubt, and we all know how much the simple process of boiling potatoes demands for its successful issue some exercise of man's noblest attribute. The tubers of the *Tamus* dug up from the hedge-rows in autumn, when the berries are ripening, would probably furnish as good yams as if cultivated expressly for use, because in the West Indies the "ruinate yams," or those that have become wild on old forsaken or ruined plantations, are esteemed the best.

The beautiful large scarlet berries, hanging in festoons on the bushes, ripen too late (with the decaying leaves) to add much to the ornamental aspect of the plant in autumn, yet are not without their use. These berries abound with a nearly insipid, watery juice, which

* On turning over several old authors to learn what may have been said by them on the subject, I find by reference to Matthiolus that my idea of converting Black Bryony roots into home-grown yams is not altogether a new one. That learned commentator on Dioscorides tells us, on the authority of one Martin Guidotti, a perfumer (myropola) of Trent, and a most diligent herbalist, that the roots of *Tamus* roasted in hot ashes are no contemptible dish (*haud ingratum sit edulium*), Matth. edit. Valgr. 1565, p. 1287. It is, however, but fair to add that Guidotti attributes medical virtues (probably imaginary) to these yams, which would make them unfit food for some temperaments. It is well known that the young shoots of the Black Bryony when they first appear above ground in the spring are eaten in some countries like asparagus, although by no means devoid of active properties, which it requires long boiling to render inert; why, therefore, should the root be less susceptible of conversion into good and wholesome aliment? Matthiolus's figure of his *Vitis nigra* is one of *Smilax aspera*, but his description applies to *Tamus*, which was the true *Vitis nigra* of ancient authors.

leaves a scarcely perceptible sense of acrimony behind on the tongue and fauces when swallowed ; but on being rubbed in a fresh state upon any sensible part of the surface, as the back of the hand, they raise, in less than a quarter of an hour, a faint cuticular eruption, attended with a slight itching and pricking, that soon subsides, leaving the part as before. Hence an embrocation prepared by steeping "murrain berries," as they are here called, in gin or brandy, is a sovereign remedy with the peasantry of the island for chilblains, and I believe a most efficacious one ; the ripe berries alone, without the spirit, will answer nearly as well, but the latter is employed chiefly to preserve them in for use during the winter. Mr. Borrer lately told me that when a boy he became aware of the rubefacient property of black bryony berries, but had not heard of their application for the infantine complaint above mentioned.

The geographical distribution of *Tamus communis* in this country and on the continent has something worthy of remark. From the contiguous parts of Asia it advances through Europe in a line gradually ascending from south-east to north-west, appearing in the Crimea, and keeping nearly on the parallel of 45° — 46° , through Transylvania and the southernmost provinces of Austria into Switzerland, where it rises northward, following the course of the Rhine into Germany as far as Carlsruhe and Strasburg, thence spreading over the whole of France, it reaches Belgium, where, however, it is rare and local ; then crossing the Channel it disperses itself throughout England nearly to its northernmost extremity, advancing to $55\frac{1}{2}^{\circ}$ of latitude, many degrees beyond its polar limits on the continent, and abounding over all the southern and midland counties in equal proportion on the eastern and western sides of the island. Yet with this marked tendency to a north-west progression, and with as much of the Atlantic as the Germanic distribution, it is not a little singular that the Black Bryony should never have been found passing over into either Scotland or Ireland, although these countries are both within its limitrophe parallels in England. With such strongly-marked western distribution, one might in theory have confidently predicated its occurrence in nearly every part of the sister island, and have reasonably looked for it in the Scottish counties of Dumfries, Kirkcudbright and Wigtown, where it may yet possibly be discovered, since these counties all lie due west of its natural localities in Durham and Northumberland. As *Tamus communis* belongs to a decidedly southern and indeed mostly tropical natural order, we may plausibly ac-

count for the great deflexion of its line of distribution in a southeasterly course, by supposing the root unable to resist the winters of eastern Europe above a certain parallel, whilst its sudden and total suppression westward in Scotland and Ireland may be owing to its not finding there the requisite degree of summer heat for its spontaneous maintenance. The common Butcher's-broom (*Ruscus aculeatus*) has a very similar distribution with *Tamus*, and like it, is not a species of even central Europe, excepting towards the west of our continent, where the winters are not too rigorous for it. Like *Tamus*, it fails totally or is doubtfully wild in Ireland, but advances a little beyond the former towards the north-west, being found in several parts of Scotland.

After all, should not *Tamus communis* have the * or at least the † appended to it? I wonder its claim has never before been called in question! We have just seen that it is quite a southern plant, unknown over the greater part of Europe under British parallels; of eminently exotic aspect and relationship, and has no one well ascertained British or Saxon name, for that of Our Lady's Seal must have been given it in catholic times, and as before remarked, seems never to have been its popular one with us; indeed Parkinson expressly tells it was only called so abroad by the apothecaries of France, Italy and Germany.* As to the name of Bryony, which it shares with the true plant so denominated, that word is altogether Greek, and therefore quite sufficient to implicate both species in the suspicion of foreign descent. Moreover, both *Tamus* and *Bryonia* are known solely as "wild vines" to a great proportion of our rustic population; a phrase very redolent this of the sunny south from whence it *must* have come with the plants themselves; nay, further, the *Tamus* is sometimes called here Black Vine, in contradistinction to the *Bryonia*, which is occasionally termed White Vine, from its paler colour. Here we actually have the genuine classical names of antiquity for the *Tamus*, the *vitis nigra* and *αμπελος μελαινα* of the Greeks and Romans, done into English for the benefit of country bumpkins; what more can be needed to prove both the plants foreigners? No, depend upon it that *Tamus*, like the *Arbutus*, the *Hop*, the *Cherry*, the *Lime* and the *Beech*, is a convicted alien; who knows but it might have been introduced by the *monks* in the train of the pious missionary St. Augustine, to rub their chilblains with, a complaint to which

* *Theatrum Bot.* pp. 180, 181.

those holy fathers were probably martyrs, if to nothing worse, for the first few winters after their arrival on our heathenish shores in the sixth century.*

In the garden at St. John's, Ryde, is a plant of *Smilax aspera*, which was originally found by Mr. John Laurence, the gardener, growing under one of the ruined walls of Quarr Abbey, about a mile from the town. I presume it must have been set there by some one wishing to try whether this native of south and south-eastern Europe could be naturalized in the island, and acquit the good Cistercians in this instance at all events of having had anything to do with its introduction within their ancient precincts.

Hydrocharis Morsus-ranæ. In pools, ditches, drains, and other still water; apparently rare, or at least not common in Hants, although probably much more frequent than I have the means of showing it to be at present. Not indigenous to the Isle of Wight, but abundant in a naturalized state in a small pool at Barretts, about two miles from Ryde, on the Brading road, introduced there a few years since with *Stratiotes aloides* and *Villarsia nymphæoides* by Dr. Salter!!! On the shallow margin of Sowley Pond, at its south-west end, in two places, September 26th, 1849. "Grows, I believe, at Christchurch, in the water bordering the lower road to Ringwood;" Mr. James Hussey in litt.!!! Plentiful at Sopley on the Avon; Pul-

* Under the heads of *Ligustrum* and *Taxus* I should have been tempted, had I known them at the time, to have inserted the two following passages from Pulteney's Catalogue of the rarer Plants of Dorsetshire in his remarks on those species, as further exemplifying the ridiculous tendency to doubt the native origin of almost every tree and shrub of British growth, which it has been my unceasing endeavour in these "Notes" to expose and combat in each instance that has presented itself for discussion. In his remarks on the privet, Pulteney shows that he himself was not uninfected with the gratuitous scepticism so often animadverted on in these contributions, for he observes, "From the oriental (*i. e.* specious or exotic) habit of this shrub, such as indulge in speculations relating to the distinction between the *native* and *naturalized* vegetables of England, might be allowed to suppose that the Privet was introduced into this island during the crusades, or at some remoter period of time." Admirable supposition! and quite on a par with that which would impute to our Holly a Japanese origin (Phytol. ii. p. 518, note). But there is no end to such vagaries, venial, perhaps, in Pulteney's time, but inexcusable in botanists of our own day, some of whom, nevertheless, hold opinions quite as absurd and gratuitous on the same subject. When he comes to speak of the Yew, however, Pulteney defends its claim to nativity against his fellow sceptics. "The title of this tree to the appellation of a *native* has been much disputed. Such as have denied it would probably hesitate in their opinion on seeing the scattered and unequivocal manner in which it is seen growing in Dorset, Wilts and Hants."

teney's Cat. of the rarer Plants of Dorset. I found it in October last extremely abundant in ditches and pools on the road out of Christchurch towards Sopley and Ringwood, beginning a short distance from Christchurch, and continuing nearly to Winkton; some of the ditches and drains in that low-lying and swampy district being quite filled with it. I may take this occasion to mention that I found *Stellaria glauca* (a plant I had down on hearsay only in the Hampshire catalogue till then), growing abundantly in marshy ground on the same road, on the left hand going towards Sopley, a short mile out of Christchurch, and still very partially in flower, October 6th, 1849. I have never remarked the Frog-bit in any other quarter of Hants, but can scarcely doubt of its occurrence in various parts of the county, as it is frequent in Sussex in the levels, on low grounds along the coast, as at Eastbourne, Pevensey, Arundel, &c.

The curious Water Aloe or Water Soldier (*Stratiotes aloides*) may be found in Hants, although for the most part restricted in its genuine wild state to the easternmost midland counties of England. It is naturalized in this island, as above mentioned, and it is only a wonder it is not more generally dispersed over the realm, since, when thrown into almost any pond or ditch, it seldom fails to take entire possession, hardly permitting a rival to flourish in peace by its side.

†? *Udora canadensis* (*Anacharis Alsinastrum*, Bab. Man.). In rivers, streams, and stagnant waters; very rare, and possibly not indigenous to the only Hampshire station yet known for this plant. In an artificial piece of water in Leigh Park, near Havant, the seat of Sir George Staunton, Bart.; Mr. Borrer, 1847 !! Mr. B. informs me that the species was remarked by the gardener at Leigh Park only within a year or two of the above date, and after the introduction to the pond of some American aquatics, with which it was concluded to have been conveyed thither. The same year, a very similar, if not identical plant, was discovered growing abundantly in the reservoirs at Foxton Locks, near Market Harborough, Leicestershire, by Miss Kirby, and since then it has been detected in a multitude of most unexceptionable localities (rivers and streams) in England and Scotland, placing its indigenous origin beyond all doubt; although as usual its claim to nativity was immediately questioned, it must be allowed with far more reason than is commonly brought forward in excuse for scepticism on like occasions. For being known exclusively till that time as a transatlantic plant (unless the Lithuanian species be the same), there was ground for demurring to its reception amongst our true natives, so long as the stations it was found in partook of an

artificial character; but now that it is ascertained to inhabit abundantly many of our natural waters, continuance of disbelief in its aboriginality would be ridiculous. Nevertheless, our only known Hampshire station is still open to suspicion in no trifling degree, inasmuch as the circumstances of the plant's appearance at Leigh Park strongly favours the probability of its having been imported with *Nymphæa odorata* direct from America. I say a probability only, because there is no direct proof of its introduction to the pond at Leigh Park beyond its having been unnoticed previous to planting the said aquatics, for I understand the pond in which it grows was an artificial enlargement merely of a natural spring or basin, in which the *Udora* may have pre-existed and have escaped observation, as it must have done in so many of its subsequently detected habitats. I am indebted to my friend Dr. T. Bell Salter for living specimens from Leigh Park, but these have not yet flowered with me, nor have I visited the station, deterred, as I was, from doing so, by the impression that the *Udora* had no real claim to insertion in the Hampshire flora. The subsequent discovery of this plant in so many distant and truly natural localities in England and Scotland has considerably lessened my unwillingness to receive it into the Hampshire Catalogue, and has induced me no longer to withhold from it the benefit of the doubt, which may fairly be raised as well in its favour as against it. But this reluctance to admit its claim to enrolment amongst our county plants, has hitherto prevented me from examining its characters and ascertaining its undoubted identity with the American *Udora canadensis*. Yet feeling pretty well satisfied that this is the case, I here enter it provisionally as such, until future observations on the Leigh Park plant by myself or others shall confirm or disprove the fact. The very highly curious and closely-related *Vallisneria spiralis*, found in similar places with our *Udora* nearly throughout Europe, will one day probably occupy a place in the British Flora, together with *Najas marina* and *Caulinia fragilis*, plants allied to the two former in habit, but belonging to another, though not very widely remote natural order.

Orchis Morio. In dry meadows and short turfy or heathy pastures; very common throughout the county and Isle of Wight, being, in fact, the most abundant of the Orchidaceæ in spring and early summer with us. Fields at Quarr Abbey and elsewhere about Ryde. Abundant about Cowes, Newport, Yarmouth, and most other parts of the island. Occurs here occasionally, though rarely, with pure white flowers; and in May, 1845, I noticed in a meadow betwixt Pigslegs

and Rosemary Lane Copses, the following varieties : α . Flowers delicate pink, verging on flesh red. β . Lip white, destitute of spots ; sepals and superior petals violet without, greenish white within. γ . Flowers violet ; disk of lip whitish, shading off into violet on the margin, its centre thickly dotted. This is certainly one of the most beautiful of British Orchises, whether we consider the soft lustre of its deep purple blossoms, emulating the richest velvet, or the diversity of shades and variegated colours they assume. The character of having single nerved bracts, which is made the foundation for a sectional division in the Manual, applies only to the highest in the spike, if even always to them, for the lower and middle bracts in all the specimens of *O. Morio* I have examined, are from 3 to 5 or even 7-nerved, but the lateral nerves are often obscure, at least in the living plant, for in the dried state they are extremely conspicuous.

Orchis mascula. Very common in most parts of the county and Isle of Wight in moist woods, meadows, pastures, and other damp and shaded situations. Var. β . Flowers pure white. I have gathered it at St. John's and near Appuldurcombe. Near Ryde ; Miss Lucas!!! Near Westridge ; Mr. Robert Hudson ! The long spikes of bright purple flowers and finely spotted leaves of the "Kettlecases," by which unintelligible name they are called in this island, are hailed with delight by young and old in April's fickle prime,

"When wheat is green and hawthorn buds appear."

This species begins to flower a little in advance of the last, which is always in blossom with us in the earlier half of May, and usually partially so at the close of April. *O. fusca*, *militaris* and *macra* are all or severally not unlikely to enrich the Hampshire Flora. The first has, according to Mr. Watson, been found by the Rev. G. E. Smith in west Sussex, the two last occur in the conterminous county of Berks and the not much more distant ones of Oxon and Bucks ; hence these species may be expected along our northern and eastern boundary.

——— *ustulata*. On dry chalky hills, downs, banks and pastures ; mostly in elevated situations, not very frequent, though I believe widely diffused over the county. Tolerably abundant on St. Boniface Down, between Ventnor and the Pulpit Rock, and in chalky meadows at Bonchurch occasionally. Steephill ; Mr. Albert Hamborough ! Freshwater, near the cliff (on High Down, &c.) ; Mr.

Dawson Turner in Snooke's Fl. Vect. !!!* Plentiful on the sloping sides of the valley by Calbourne New Barn; the late Lady Simeon!!! Sloping pasture at Apes Down; Mr. Charles D. Snooke. Littleton or Flower Down, near Winton; Rev. Messrs. Garnier and Poulter in Hamp. Repos. and Dr. A. D. White!!! Pinks Hill (near Warnford); Rev. E. M. Sladen. Bordean; Miss L. Sibley. Hardly to be met with in the lower and level country. The name of *ustulata* is very appropriate to the burned or singed aspect given to the summit of the spike by the purple brown colour of the flower-buds.

OBS. *Orchislaxiflora*, a species common in the Channel Islands and on the continent of Europe, will probably ere long be discovered in Britain.† Dr. Salter found June 5th, 1845, at Spring Vale, near Ryde, a variety of *O. Morio* "with the upper (lateral) sepals reflexed in the advanced flowers." The specimens he kindly gave me are taller than is usual in this species, and have many (3—5) nerved bracts, but so, we have seen, has *O. Morio*, from which they differ in no other particular than that above stated. I should guess the figure of *O. laxiflora* in E. B. to be an indifferent one, and it looks much as if drawn and coloured from a dried specimen.

—— *maculata*. In dry or damp, and even wet meadows, woods, thickets, pastures, and on heaths; abundantly throughout Hants. Assuredly very closely allied to *O. latifolia*, but distinguished by its (always?) solid, not hollow stem,‡ pyramidal, somewhat acute spike, by the much smaller and shorter bracts, more slender and pointed spur, and by the broader and shorter lip, the central lobe of which is about equal to the two lateral lobes, that are notched on their margins, and usually, but not invariably, flat or spreading, sometimes deflexed. The plant is commonly shorter and far less robust than *O. latifolia*, but is extremely variable in the colour and markings of the flowers and in the form and proportions of the lip. "A variety with blood-red flowers was found in this island by the Rev. R. Price, of Lyminge, Kent, and is now growing in his garden." Rev. G. E. Smith (in litt.).

* Several stations for plants were communicated to Mr. S. by that accomplished botanist and antiquary.

† Mr. Borrer informs me that *O. palustris* is reported to have occurred in the Isle of Wight; what this may be I do not know, since I am told it is not the same thing as *O. laxiflora*, to which the *O. palustris* of Jacquin is referred as a synonym in Steudel's Nomenclator, in which work no other species is mentioned bearing the latter name.

‡ The cavity in the stem is filled up with loose cellular tissue, but is not truly solid.

Orchis latifolia. In low, damp pastures, wet or boggy meadows and thickets, rarely in dry and elevated situations; pretty frequent, though much less common than the last. In Sandown marshes, near Shanklin and Appuldurcombe. Very fine at Colwell Bay; common in meadows at Thorley and in boggy ground below Calbourne Mill. Abundant in boggy meadows at Easton, Freshwater Gate. Common in the great fir and beech plantation on the down above Westover. Wet meadows about Newchurch, &c. Wet meadow betwixt West Mill and Carisbrook; Mr. Charles D. Snooke. Var. β . *incarnata*, Bab. Man. p. 310. Boggy ground by the Wilderness, June, 1844. I happen not to have made any notes of the occurrence of this species in mainland Hants, but feel convinced of having seen it there, and cannot suppose it to be less common in that part of the county than in this or in other parts of England. Distinguished from *O. maculata* by its much stouter habit, hollow stem, cylindrical and rather obtuse than acute spike of flowers, by the much smaller middle segment of the 3-lobed lip, which is distinctly produced beyond the two lateral, rounded, nearly entire or slightly crenate lobes, that are deflexed, not plane or spreading, as in the other; by the less attenuated, subcylindrical or conical, bluntish spur, always much shorter than the germen, and lastly, by the much larger, longer, more conspicuous bracts. Leaves not usually spotted; flowers here sometimes white.

—— *pyramidalis*. In dry, and particularly hilly meadows, pastures, and in grassy woods on the chalk, as also on argillaceous soils containing any notable proportion of calcareous earth; growing at a lower elevation than *O. ustulata*, even at the sea-level, but more commonly in the higher grounds. In many parts of the Isle of Wight abundantly. Not common about Ryde. Plentiful in Binstead stone-pits; and in the fields by the road from that village to Ryde, sparingly. Plentiful in grass fields at Egypt, by West Cowes (the extremest north point of the island), and on the slipped land along the shore to the westward of Cowes. More common on the chalk downs than elsewhere. Abundant on the down (High Down) W. of Freshwater Gate; near Compton farm and near Yarmouth. Down above the Culver Cliff. Abundant on Carisbrooke Castle Hill, but of small size. Common on grassy slopes at Ventnor. In Calbourne New Barn Hummet, and in the great fir and beech wood along the flank of the down above Westover. On Bembridge Down and in various other places. Some plants gathered in the chalk-pit opposite

the Mountjoy bastion (Carisbrook Castle) had the protuberances of the lip much elongated and leaf-like, July 18th, 1849; Mr. Charles D. Snooke (in litt.). I presume this species to be frequent over the county, but I have few data for showing its distribution on the main land, not happening to have noticed it there myself, excepting, if I remember right, about Bordean Hill. Otterbourne; Miss A. M. Yonge. Bordean; Miss L. Sibley, and (with white flowers) Rev. Messrs. Garnier and Poulter in Hamp. Repos. Maindell chalk-pit (Fareham); Mr. W. L. Notcutt. The flowers of this beautiful species vary with us from the deepest rose red to white.

The Lizard Orchis (*Satyrium hircinum*), it is far from improbable may eventually be found in Hants, since it grows in the adjoining county of Surrey, if not now extirpated by the rapacity of botanical collectors and the cupidity of orchis-rearing nursery-men. In our more retired and less explored county it might long vegetate unnoticed and undisturbed, and should be looked for on dry, bushy, chalky banks and hills. It has lately been found (a single specimen I believe only) at Great Glenham, in Suffolk, and although not indicated as a native of Ireland in the Manual, is mentioned as such in the 'Plantæ Rariores Hiberniæ' of Dr. Wade; and when last in Dublin Mr. D. Moore, of the Glasnevin Botanic Garden, told me he had himself met with it in that country, and communicated the rediscovery of this rare species to Dr. J. T. Mackay, in whose 'Flora Hibernica,' however, it does not appear. It is clear, therefore, that *O. hircina* has a very wide distribution in Britain, but is extremely local, and usually very sporadic; and since we are here but little removed from the part of England where it occurs with greatest frequency, the prospect is the fairer of ultimately detecting it within the limits of this county.

Gymnadenia conopsea. In dry heathy or chalky pastures, or in wet, peaty, boggy or clayey ground, not common, though found in several parts of the county and Isle of Wight. Extremely fine and plentiful on very wet banks of slipped clay in Colwell Bay, Freshwater, and in boggy ground at the upper end of Colwell Heath; first remarked there by the Rev. G. E. Smith, who justly observes that the plant has a mixed odour of the hyacinth with that more proper to the species, which much resembles the fragrance of the clove pink. On Freshwater Down; common, 1841. On chalky slopes at Apes Down, June, 1846. Bank opposite Madeira Villa, Ventnor; Miss Hadfield!! (it grows also in the Chicken pits and elsewhere in that place). Carisbrook Castle, S. and E. moats and ramparts, and heath

between Staplers and Briddlesford; Mr. Charles D. Snooke. It seems not less frequent on mainland Hants. About Petersfield, West Meon, &c., not rare; Miss L. Sibley!!! Otterbourne; Miss A. M. Yonge (in litt.). Plantation behind Wheely Cottage (near Warnford); Oliver's Battery, near Winton; Rev. E. M. Sladen. Abundant on Littleton or Flower Down, near Winton; Dr. A. D. White. Probably in very many other parts of the county; most likely frequent in the forest tracts, as I think it is in Sussex. The plant as it grows on bog at Colwell is often very large, eighteen to twenty inches high or upwards, with very densely-flowered spikes, and leaves an inch or nearly so in width, but sometimes in equally wet soil extremely narrow and erect. This form may possibly be the *G. densiflora* of Dietrich's 'Flora Marchica,' p. 164, whilst another variety with excessively narrow leaves, and a somewhat lax or open spike, and of humbler stature, growing on dry chalk soil at Ventnor, may be what he intends by the true *G. conopsea* of that work, and which I supposed might prove identical with the true *G. odoratissima*, *Rich.* (*Orchis odoratissima*, *Linn.*), but that species, if it be not a mere variety of *G. conopsea*, is distinguished by its much shorter spur, and narrower, cylindrical, not conical spikes of very minute flowers. The delightful fragrance of this plant is most powerful towards evening, and in those plants that grow in damp situations, for on dry soils it is nearly inodorous. *G. albida* (*Habenaria albida*, *R. Br.*) is reported in 'Cybele Britannica' as found in Hants on the authority of the Rev. S. Palmer, and has indubitably occurred in one locality in Sussex.* I have never seen Hampshire specimens of this rather northern than southern and mountain-loving species, but there is good ground for hoping it will some day reward the investigator of our county flora on hilly heaths. The curious Green Man Orchis (*Aceras anthropophora*) is a still more likely plant to occur, and I have indeed heard from Miss E. Sibley that it has been found at East Woodhay, in the north of the county, which, although on unconfirmed and anonymous authority, is very probably correct, seeing that it grows abundantly in certain parts of Surrey and in Berks, and may therefore be expected with the greatest reason in such districts of Hants at least as adjoin on those two counties.

Habenaria viridis. In hilly, heathy and grassy pastures, or in low meadows; very rare in the Isle of Wight, and not at all common in the rest of the county. A single specimen picked in a rough pasture

* Jenner's Fl. of Tunbridge Wells, p. 45.

field at the end of the fir plantation by Long Lane, near Newport, 1841; Mr. R. G. Kirkpatrick! A second specimen gathered in June of the same year by Miss Woodroffe, of Calbourne, near the "high summer-house" at Swainston! both which examples I possess through the kindness of the finders, and are the only ones I have seen from this island, where it has not once occurred to myself in more than twelve years' investigation of its floral productions. On Beacon Hill, near Highclere, in tolerable plenty, and still in flower, August 9th, 1849. I have received it from Miss Lovell, 1848, gathered, I believe, at Catherington, near Clanfield! Searjeant's Meadow, Warnford; Mr. Vickery. Field by the Winchester road, near Cheriton; Miss L. Sibley. Flower Down, near Winton; Miss L. Legge! Near Lodge Bere Forest; Messrs. Garnier and Poulter in Hamp. Repos. A more frequent species in the north than in the south of England, but Mr. G. E. Smith tells me it is not uncommon in Sussex in damp meadows at the foot of the downs.

Habenaria bifolia. In woods, copses, and in open, heathy places; rare in the Isle of Wight, and not yet seen or received by me from mainland Hants, where it must doubtless grow in many of the forest districts, &c.* In Stroud Wood, near Aldermoor, by Ryde, not sparingly, June 11th, 1838. Two specimens picked on Colwell Heath, June, 1841. In the former station it may, I believe, be found yearly in considerable plenty. Heath between Staplers and Briddlesford, near Newport; Mr. C. D. Snooke. This is rather a puzzling plant, about the value of which as a species apart from *H. chlorantha* I have ever entertained considerable doubt. It unquestionably presents some good and apparently permanent characters, and has long been distinguished by Ray and other of the earlier botanists at home and abroad from the larger and commoner *H. chlorantha*, yet I think the differences betwixt them are such as might be inferred to result from soil and situation. It must be allowed, however, that their distribution is different, *H. bifolia* being the plant of Sweden, Denmark, and other boreal countries of Europe, as is evident from the figures and descriptions of the northern botanists, whilst *H. chlorantha* inhabits central and southern Europe, and is infinitely more abundant in this part of England than the smaller species. The differences between them have been ably illustrated by Mr. Babington, in the 17th volume of

* Whether the *H. bifolia* of Mr. W. L. Notcutt's 'List of Fareham Plants' (Phytol. ii. p. 213) be this species or not, I am uncertain; if it be the true plant, then is Titchfield Common a mainland station, and a very likely one for the lesser Butterfly Orchis.

the 'Linnean Transactions,' and in the Supplement to E. B., and who was the first to disentangle them from the neglect and confusion into which they had fallen in Britain, although sufficiently recognized on the continent. Besides the figure in E. B. Supplement, t. 2806, I may cite for *H. bifolia* that of Fl. Danica, ii. t. 235, as good, and the beautiful one of Mr. Curtis in 'British Entomology,' v. t. 233, as still better. The figures of *H. (Platanthera) solstitialis*, *Drejer*, Fl. Dan. fasc. xl. t. 20360, and t. 20361, are excellent representations of our *H. bifolia*.

The great characteristic of the plant before us is the parallelism of the anther-cells, more closely approximated at their base, than those of *H. chlorantha* at the summit of theirs; hence the flowers of *H. bifolia* are much narrower than in *H. chlorantha*, and far less handsome and conspicuous. The anther is shorter, the petals narrower, the two lateral connivent petals, with the lip, spur and summit of the anthers, are of a greenish or herbaceous colour, scarcely observable in the almost pure white flowers of *H. chlorantha*; the spur is more slender, filiform and cylindrical, being scarcely at all compressed as in *H. chlorantha*, neither is it sensibly enlarged or clavate at the extremity as is so remarkably the case in the latter, and is hardly thicker than a packthread throughout, besides which it is usually straighter, and often horizontally corrected as well as prone or deflexed. I observed in all my specimens of *H. bifolia* from Stroud Wood that the lateral sepals are simply spreading, and rather curved forwards or slightly connivent than reflexed, which is their general tendency in *H. chlorantha* when fully expanded. The scent of the lesser and greater Butterfly Orchis is highly and delicately fragrant, particularly towards evening and at night. To myself the odour is like that of the Tuberose (*Polianthes tuberosa*), to others like that of orange flowers or scented soap. It is to be regretted that the confusion in which the synonyms of these two presumed species were so long involved should have settled the name *chlorantha* (greenish yellow flower) upon the species the least meriting the appellation. The concluding remarks of Sir James Smith on *Orchis bifolia* in his 'English Flora' evince the very little attention he paid to our present plant even as a variety, distinctly noticed by so many of the older botanists.

Habenaria chlorantha. In moist open places in woods, thickets, groves, and on grassy slopes; very frequent in the Isle of Wight, particularly on stiff clay soils. Very common about Ryde, at St. John's, in Quarr Copse, woods at Sea Grove, the Priory, Westridge, &c. Abundant in the grounds at Norris Castle, and in Mrs. Good-

win's grounds at West Cowes. Woods and pastures about Combley, Duxmore, and all that vicinity, frequent. Woods on the west side of the Wootton River, at its mouth, plentifully. Common in woods about Swainston, Calbourne, Thorley and various other places. Having accidentally omitted to observe and record the stations for this species in mainland Hants, I can only state my belief that it is in all probability equally frequent there as in the island. Var. β . Flowers regular, without a spur. Grounds at Norris Castle, very rare. This beautiful and fragrant species is well distinguished from the last, by its generally greater height (often eighteen to twenty inches) and robustness; much larger and broader leaves, of a purer white; thicker, more compressed and somewhat club-shaped spur; and especially by the great divergence of the anther-cells, whose bases are so far apart, that were the apex of each cell produced till they met, a nearly equilateral triangle would be described by their union. The variety, or rather monstrosity, β . is very remarkable, as having flowers in five nearly equal divisions, quite scentless and tinged with green, the lateral petals not connivent but spreading, lower one or lip, broad, plane, and the spur entirely wanting. Of this monstrosity I had previously seen a dried specimen from the same station, in the possession of Miss E. Kilderbee, and was at a loss what to consider it. Mr. D. Stock, of Bungay, has remarked a similar alteration of structure in the flowers of *Orchis pyramidalis*.

Besides the figure of *H. chlorantha* in E. B. i. t. 22 (*Orchis bifolia*), and the elegant full length one of Curtis, Fl. Londin. ii. fasc. 6, t. 65, that in 'Flora Danica,' fasc. 40, t. 20362, is hardly inferior to the others as a representation of our common greater Butterfly Orchis. Reichenbach's three figures, Iconogr. Bot. ix. Nos. 1143, 1144 and 1145, are, like too many more of that hair-splitting author's, exaggerated portraits in form and colouring of *H. bifolia* and its varieties, *H. brachyglossa* and *chlorantha*. I have never found *H. bifolia* with such ell-long spurs, nor *H. chlorantha* so outrageously green, and cannot but suspect the figures of each were made from dried specimens, and coloured from the ideal examples of a vivid imagination or perhaps a treacherous memory. However that may be, they are not, I am convinced, normal states of the species they profess to represent, and unworthy of citation in the room of the elegant and faithful delineations in the 'Flora Londinensis' and 'Flora Danica' lately adverted to. Justice, nevertheless, requires that due praise be given to the many correct and sometimes admirable figures in the Iconographia of Reichenbach; a work which, with all its faults of perplexed

arrangement and minute specific divisions, is still a most valuable and sumptuous repertory of botanical illustrations.

Ophrys apifera. In dry meadows, pastures, woods and thickets, on chalky banks, downs, and on wet slipped land, mostly on loamy or limestone soils, or where calcareous earth is a principal constituent; by no means uncommon, and in particular years even abundant, over a great part of the Isle of Wight and mainland Hants. Being extremely uncertain and capricious in its habitats, often appearing abundantly one season where it was scarce or failed altogether to show itself the year before, it is unnecessary to give more than a general view of its distribution, without recording its almost numberless special localities. Sometimes quite common about Ryde, at Quarr, Binstead, in Pelham fields, &c. About Cowes, at Egypt, Norris Castle, &c., and about Yarmouth. About Newport, at Carisbrooke (on the castle hill, &c.), Calbourne and elsewhere. Frequent on most of the downs about Freshwater, often in great abundance, as it was last year (1849). At Bonchurch, Ventnor, Steephill, Blackgang and most other parts of the Undercliff, on the chalky banks and pastures, often plentifully. In Bembridge Island, about the Culver Cliff, Whitecliff Bay, &c. On the banks of slipped land (green sand and clay) under the cliffs at Shankin. Abundantly on Kennerley Heath, near Godshill, in sandy loam amongst the furze, and very fine; June, 1843, in which year it was very universal in the island: but it is needless multiplying stations for this ubiquitous but not always plentiful species, as it may be found in most parts of the island and in most years by a little seeking, especially on the chalk and slopes of the downs. A specimen with the flowers nearly white, the lip only being greenish, was found by Mrs. Martin at Ventnor some years ago. On the mainland of the county *O. apifera* is about equally frequent. At West Meon in various places; the Miss Sibleys: and where a variety with white flowers has occurred, and a similar one is recorded by the authors of the catalogue in the 'Hampshire Repository' as having been found at Borden. Warnford; Mr. Vickery. Bullington; Rev. D. Cockerton. Beacon Hill, Highclere Park; Cat. of Plants of Newbury !!! Nore Hill and Selbourne Park; Professor Bell. This beautiful and singular plant is well known here as the Bee-flower, and although no uncommon species over a great part of England, is made as much account of as though it were a great rarity, and the Isle of Wight had the exclusive happiness of producing it. The Bee-flower figures in all the guide-books, flourishes on the vegetation of the island, and is a staple article in every enumeration of Vectic memorabilia

and amenities. In certain but indeterminate seasons it may be gathered in quantities, and sometimes attains here a height of two feet. Reichenbach's figure (Iconogr. ix. no. 1159) is very indifferent, and if representing this species at all, depicts a variety such as I have never met with. The exquisite one of Curtis in the 'Flora Londinensis' perfectly exhibits the species in its normal condition with us.

Ophrys aranifera. In chalky, clayey or limestone pastures; very rare? The var. β . *fucifera* (*O. fucifera*, Sm.) is the only form yet collected in Hants, and the Isle of Wight the only part of the county where it is certainly known to grow. First found May 10, 1841, by Albert Hambrough, Esq., on St. Boniface Down, above St. Boniface Cottage (several specimens). Behind Upper Mount, Bonchurch; Miss Dick and J. Saxby, Esq.!!! Several specimens gathered in Luccombe Landslip, by the side of the main path, May, 1843, by a servant of Miss Roper, of Ventnor!! On a sloping bank on the left hand side of the Cowleaze going from Ventnor to Bonchurch, just below the Madeira Vale Villas, May, 1843; Mrs. Clarkson!!! Gathered in this last station by Miss Thompson in 1846, and since by Mr. A. Hambrough and myself in 1848-49, at the end of April and beginning of May, in tolerable plenty. It has not been discovered elsewhere in the island, but will probably be found on the chalk in other parts of it if carefully sought for at the proper season; but being a smaller, and from its colour less conspicuous and attractive plant than *O. apifera*, and flowering many weeks sooner than that species, it may elude observation at any time. Bullington, abundantly; Rev. D. Cockerton: is this correct, and, if so, what form does the species put on? Our Hants stations are interesting, as being the most westerly ones known for this eminently eastern *Ophrys*, and furnish another proof of the assertion before made, that the floras of the east and west of England become fused into each other in this county. Smith quotes the beautiful figure of Curtis, Fl. Lond. ii. fasc. 6, t. 67, for his *O. aranifera*; to me that plate decidedly represents our variety, the *O. fucifera* of the 'English Flora,' and very admirably too. It is possible that *O. arachnites*, the only British species of the genus wanting to our county, may hereafter be detected in Hants.

—— *muscifera*. In chalky or clayey, usually hilly pastures, woods and thickets; less frequent than *O. apifera*, but far from uncommon in the Isle of Wight and county generally, although, like the Bee-flower, uncertain in its stations and variable in quantity in different years; flowering with us from the commencement of May to the beginning or even the middle of July. At the farther part of Cal-

bourne New Barn Hummet, plentifully; May 9, 1846: and since gathered in some abundance in the same wood, of which it seems to be a pretty constant inhabitant. Plentifully on a rough, sloping, stony field nearly at the back of the Tolt Copse, Gatcombe, June 10, 1846. In the great fir and beech plantation on the down near Westover, several specimens upwards of two feet high, July 3, 1843. In a chalky hollow on the north side of Messly or Mersley Down, sparingly; May 28, 1844. Quarr Copse, in some plenty; Miss Theodora Price, June, 1838 !!! Field at Egypt, W. Cowes; Rev. Mr. Mann. Cliff above Gurnet Bay; Miss G. E. Kilderbee! Shady lane under Carisbrook Castle, and on the borders of a lane leading from Roughborough farm up the down; Mr. G. Kirkpatrick. At Norris Castle; Id. In considerable abundance in the copse of low brushwood (chiefly hazel) on the down at the top of Alvington chalk-pit, about half a mile from Carisbrooke, on the Yarmouth road; Miss Dennett (vidi icon). Solitary specimens I have picked in several other places, and it occurs sporadically, I think, in nearly all parts of the island, but I hardly know if it be found on the green sand. Woods, &c., about W. Meon, as Hall Place, Westbury, Warnford, Chappets and elsewhere, common; the Miss Sibleys. Bordean Hill, frequent; Id. !!! Bordean Hill, Hambledon; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Parnell or Parholt Wood, near Farley, by Winton; Miss A. M. Yonge !!! Highclere; Dr. A. D. White. Highclere Park and Barton's Copse, by Sidmonton House; Cat. of Plants of Newbury. Nore Hill, Selborne; Professor Bell! Doubtless widely and generally dispersed throughout the county, but probably rare in the western or New-Forest district. Its geographical distribution is remarkable, as, although found in Norway at least as far north as Trondiem (Drontheim) in lat. $63\frac{1}{2}$, and, it is said, in the Loffoden Islands $68-69^{\circ}$, it scarcely enters Scotland in lat. $55-56^{\circ}$. The same sudden termination far to the south of its polar limit on the continent holds true of the next plant.

Herminium Monorchis. On chalky banks and pastures, rare? and not yet observed in the Isle of Wight. Bordean Hill; Rev. Messrs. Garnier and Poulter in Hamp. Repos. !!! I am indebted to Miss L. Sibley for pointing out to me the station for this little plant, which is on short pasture ground on the way to the ascent of the hill from Langrish, on the right hand near the lime-kilns. Miss G. E. Kilderbee has kindly supplied me with numerous fine specimens gathered there in July last. Fir plantation under Wheely Down, near Warnford; Mr. Vickery. These are the only stations I find recorded for

the Musk Orchis, but a plant so slender and inconspicuous may well be supposed far less rare than it appears to be.

Spiranthes autumnalis. On dry, open, turf pastures, lawns and heaths; by no means unfrequent in the Isle of Wight, nor, as I believe, throughout the county, but scarcer in some years than in others. So generally dispersed, and withal so uncertain in its stations, that a long enumeration of special localities would be unnecessary and often lead to disappointment, since it is continually making its appearance abundantly in new or unobserved habitats and disappearing as suddenly in old ones. Sometimes plentiful about Ryde and places in the vicinity, as at St. John's, Seagrove, Nettlestone, St. Helen's, &c. Fields and pastures in various places along the Undercliff, frequent. Near Hardingshoot farm, and on the turf near Sandown Fort. Fields about Chale; Miss Lucas. Northwood Park; Miss G. E. Kilderbee. Mount Cleve, Niton; the Miss Sims's!!! Near Carisbrook Castle, Colwell and Freshwater, Sir Nash Grose's (the Priory) grounds, near Ryde; Mr. W. D. Snooke. On St. George's Down (near Newport). Field opposite Alverton farm, Whippingham parish. Pastures west of Fishbourne Creek, through which a new road (leading nowhere) has been lately made; Mr. Charles D. Snooke. Occurs here and there in most other parts of the island. Picked in Hayling Island, September, 1849. In great abundance in Cranbury Park, near Winton; Miss A. M. Yonge (in litt.). Wheely Down, Old Winchester Hill (near Petersfield); Rev. E. M. Sladen. In the Long Lith, and towards the south corner of the (Selborne) Common; Rev. G. White. Woodcote, Sutton Common, near Alton; Miss L. Sibley. Lawn at Mr. Osborne's (Fareham); Mr. W. L. Notcutt. Magdalene Hill, St. Giles's Hill, grass plats in the warden's garden (Winton); Dr. A. D. White. To the majority of persons this plant smells delightfully fragrant, but to myself it is nearly inodorous, as is also the following, and all the exotic species, as *S. gracilis*, *tortilis*, &c., I have gathered in other countries.

———— *estivalis.* In boggy places, by streams and ponds; very rare. Discovered just ten years ago by Mr. Branch* in the New Forest, along a stream on a small tract of sphagnous bog close by the high road, about two miles and a half from Lyndhurst, towards Christchurch, and where it was gathered by Mr. Borrer and myself in considerable plenty, August 6th and 7th, 1841, growing with *Myrica*, *Narthecium*, *Drosera longifolia* and *Rhynchospora alba*, &c.

* Or by Mr. Jansen, according to Watson, Cyb. Brit. ii. p. 414.

The only station yet known for this fine species in Britain (excluding, of course, the Jersey locality), but it will probably be soon detected in other parts of the county and beyond its limits.* Some of my specimens are a foot in height. Dr. Gray seems to consider the *S. latifolia* of Torrey as identical with our *S. æstivalis*, but the former I do not remember ever to have seen. I have gathered a species very like our own in the mountains of Jamaica. Richard's generic name *Spiranthes* is admirably characteristic of the twisted or spiral arrangement of the flowers, and would have been worthy of adoption had not still stronger reasons called for its employment in place of *Neottia*, now restricted to the true Bird's-nest, *N. Nidus-avis*, originally so named by Linnæus.

Listera ovata. In dampish woods, thickets, copses and under trees in shady pastures; very frequent in the Isle of Wight, and I believe throughout Hampshire. Plentiful in Quarr Copse, Apley Wood, and most other woods about Ryde. Woods about Cowes. Abundant in Tolt Copse, Gatcombe. In Appuldurcombe Park. About Carisbrooke Castle, and in woods and shady places in most other parts of the island. Pasture field at Boldre Hill. Frequent in the beech woods of the mainland. Maindell chalk-pit (Fareham); Mr. W. L. Notcutt. Betwixt Hursley and Otterbourne; Dr. A. D. White. N. B.—*Listera cordata*, a species frequent in the north of England, has been found near Culbone, in Devonshire, and in Somersetshire, and may possibly be some day discovered on our highest Hampshire Hills.

Neottia Nidus-avis. Mostly sporadical in moist shady woods and copses, usually amongst dead leaves; not very common, although pretty generally dispersed over the island and county. In Quarr Copse occasionally, where I have repeatedly found it in a hollow (old stone pit), on the left of the entrance at Binstead, as well as in other parts of the wood, but rarely. Wood near East Cowes Castle. Hungerberry Copse, near Shanklin. Swainston Woods. Calbourne New Barn Hummet. Cleveland Wood, Appuldurcombe. Woods at the Priory, occasionally. Cothey bottom Copse, by Westridge. Several specimens in the large plantation of Scotch fir in Bordwood Copse, June 1st, 1845. In Northlands Copse, Yaverland, July, 1848. At Fernhill, but not seen there of late; Mrs. Sanders. In great Whitcomb Wood, near Gatcombe; Mr. G. Kirkpatrick! A speci-

* I learn from Mr. Borrer that it is found in other spots in the neighbourhood of Lyndhurst, and that it is still abundant in the original station (March, 1850).

men found on the lawn at St. John's, Ryde, June, 1843, by Mr. J. Lawrence, jun. Equally, if not more frequent on mainland Hants, so far as my observation has extended. Hampnage Wood, Avington, near Winton, 1848. In a high wood at Bordean, apparently frequent, July, 1848. Akenden Wood, near Alton, 1849. Westbury, Brookwood, Selborne; Miss E. Sibley!!! About West Meon, Beacon Hill Wood; Rev. E. M. Sladen. Holt and Wickham Woods; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Selborne, "in the Long Lith, under the shady beeches amongst the dead leaves; in Great Dorton, among the bushes, and on the Hanger plentifully; Rev. G. White and Professor Bell!!! Highclere Park; Cat. of Pls. of Newbury. This plant is readily detected at all seasons, as the dry stems and firm subligneous capsules are persistent in the woods for a year or two after flowering. To myself the flowers of this singular species have the odour of *Adoxa Moschatellina* mingled with that of primroses, but fainter. From the researches of the late Hon. and very Rev. W. Herbert, there is no reason for holding this plant to be parasitical, much as its structure and habit appear to countenance such a propensity. The singular leafless *Limodorum abortivum* I conceive extremely likely to be discovered in England eventually, as it appears to be by no means very rare in the northern departments of France, and is also native to Belgium and other parts of central Europe.

Epipactis latifolia. In moist, shady and rocky woods and thickets, not confined to hilly places, but found at the sea level both on the chalk and clay, as well as on the uplands. By no means uncommon either in the Isle of Wight or on the mainland of the county, but rarely in any great plenty. All the plants found by me in the island are, I think, referrible to the true *E. latifolia* of the Manual, and to no other, at least I could never distinguish satisfactorily any form exactly corresponding to the *E. media* of Fries, although the leaves vary much in shape and breadth with us. In Quarr Copse, Binstead, here and there, but sparingly. Quite frequent, it may almost be called plentiful, in the wooded ground skirting the shore betwixt Ryde and Binstead, exactly the *E. latifolia* of the Manual, the flowers here variously suffused with purple, sometimes wholly of a pale green. Not unfrequent in the rocky, woody landslip between Luccombe and Bonchurch. Woods at Swainston occasionally, Kingston Copse, Tolt Copse, near Gatcombe. Rather plentiful in the great plantation on the down above Westover. A single specimen in a wood at Rowledge, and another seen in Slucombe Copse, 1845. Westwood, and in

other woods about W. Meon; the Miss Sibleys!!! Abundantly in Selborne Hanger, and in the High wood under the shady beeches; Rev. G. White!!! I am quite unable to say to which of the three supposed species or varieties of the original *E. latifolia* the plants from these stations are to be referred. Wood at Brookwood; Miss L. Legge! Under the firs on the downy slope of the hill S. of Chilcombe (near Winton); Dr. A. D. White. Otterbourne; Miss A. M. Yonge. Woods about Borden, West Meon, shady parts of Froxfield Hangers, frequent; common about Selborne; W. A. B., 1849.

The upper edge of the anterior face of the stigma bears a small, porrected gland, secreting a frothy globule of an extremely viscid, milky fluid. This fluid, which is perfectly distinct from the nectariferous secretion of the stigmatic disk, has apparently for its object the retention of the pollen masses on their falling forward upon the posterior hollow of the stigma, and which masses, being destitute of the adhesive glands common to other genera of Orchidaceæ, could scarcely without such a provision be retained long enough on that organ to effect the fertilizing process. In the present genus the form of the anther-cells and pollen masses is reversed, the smaller ends of both being uppermost; in this inverted condition the usual appendages of stalks and glands could serve no other purpose than to keep the pollen masses suspended *over* but not in *contact* with the stigma, as by the above simple contrivance they most effectually are.

Epipactis media? My friend Professor Bell finds occasionally in Selborne Park and in the Hanger, a plant which he believes to accord with the description of this species in Babington's Manual; the flowers are very small and remarkably distant, the leaves much narrower than in *E. latifolia*, and gradually passing into the very attenuated bracts. I have seen only a single dried specimen, and cannot, therefore, venture to pronounce an opinion on its identity with the above presumed, but I fear problematical species. *E. ovalis* of Babington seems to possess far better pretensions to specific distinction, but is perhaps an unlikely plant to be found in this county.

——— *palustris*. In low marshy or boggy meadows, on wet slipped land and in other watery situations, but not common. Very plentiful on the banks of slipped land in Colwell Bay, associated with *Gymnadenia conopsea*, and at the upper end of Colwell Heath. Marshy meadows at Easton; frequent. Shore about Chine Head, and in various places in the landslip between Luccombe and Bonchurch. Abundant in the half dried up clay pits near Cranmore farm, near Ningwood, with *Sparganium natans* and *Typha angustifolia*, July 14th, 1844. Marsh near Compton; Mr. W. D. Snooke (Fl.

Vect.). Between Shanklin and Godshill? Mr. J. Woods, jun. in Bot. Guide, but whether this plant be intended or rather *E. (Cephalanthera) grandiflora* or *E. ensifolia*, all of which have successively borne the name of *Serapis longifolia*, under which it is there mentioned, I am unable to say. Sowley Pond, near Lymington; Mr. R. Jefford!! Otterborne, in plenty; Miss A. M. Yonge. Warnford Moor; Rev. E. M. Sladen. These are the only stations known to me as yet for this very pretty species in our county.

Cephalanthera grandiflora (Epipactis grandiflora). Common in woods, groves, and bushy, shady places, in various parts of the hilly and chalky districts of mainland Hants, in the eastern and central portion of the county; extremely rare in the Isle of Wight. A solitary specimen in flower, June 8th, 1844, in the thickest part of the wood called the Hummet, at Calborne New Barn; all attempts to find more have been fruitless, though often made since. Several specimens found in full flower, June 8th, 1848, under hazels and beeches in a small hollow or ravine on the east side of Carisbrooke Castle Hill; Miss Dennett!!! This fine species doubtless exists in other parts of the island, but must still be, like *Habenaria viridis*, an extremely rare inhabitant here. In Bordean Hanger, with the following, in considerable plenty, and in woods about Langrish and Bordean generally. Abundant in Avington Woods (in the long southern ride, &c.). Murdon Woods, as well as in other woods in that vicinity (Winton); Dr. A. D. White!!! who tells me it is common in the great belts and clumps of fir plantation so frequent on the downs around Winchester. Wood near Upham (by Bishop's Waltham) with *C. ensifolia*; *Id.* and Miss L. Minchin. Warnford; Rev. E. M. Sladen. Holt Wood; Rev. Messrs. Garnier and Poulter in Hamp. Repos. (*Serapis grandiflora*). Highclere Park; Anon. Cat. of the Pls. of Newbury. Woods at the Grange, near Ringwood; Mr. Ingram. Selborne Hanger and Selborne Park, common in the latter; Professor Bell!!! In great abundance and of magnificent growth in a young plantation at Westbury House, West Meon; the Miss Sibbels; some of the specimens here are nearly two feet in height, forming clumps, many stems springing from one root (a rare thing in British *Orchidaceæ*), making a beautiful appearance!!! I found it apparently frequent in Parnell or Parnholt Wood, near Farley, May 26th, 1849. Miss G. E. Kilderbee finds the flowers of this and *C. ensifolia* powerfully fragrant, like tuberose.* I once thought I per-

* Sir J. E. Smith says they are "perfectly inodorous at all times."—Engl. Fl. iv. p. 44.

ceived some such odour in a large number of specimens of each enclosed in a tin box at night, but could never be made sensible of it in individual plants, any more than in *Spiranthes autumnalis*, so grateful to many people, or in *Linaria repens*, odorous to some, although quite as sensible as the generality of persons to the perfume of *Gymnadenia conopsea*, *Habenaria chlorantha*, violets, roses, and other garden scents.

Cephalanthera ensifolia. In precisely similar places with the last, of which it is often the associate, but much less general than that. Not certainly known to inhabit the Isle of Wight, unless the *Serapias longifolia* of Mr. J. Woods, jun., in B. G. were this species and not *Epipactis palustris*.* Abundant at Westbury in the same place, and intermixed with *C. grandiflora*; the Miss Sibleys!!! Plentiful in Bordean Hanger; Miss G. E. Kilderbee!!! Stoner Hill; Mr. Borrer. Wood near Upham (by Bishop's Waltham); Dr. A. D. White and Miss L. Minchin. Pink's Hill, near Warnford; Rev. E. M. Sladen. Wonston; Miss Legge! In the long southern ride in Avington Wood; Dr. A. D. White.

Mr. Watson (Cyb. Brit. ii. p. 419) intimates a doubt in his mind of the specific identity of *C. grandiflora* and *ensifolia*, but surely few plants can be better marked than these, nor have I ever observed the least disposition in them to intermingle their respective characters. *C. grandiflora* is a taller and far more robust species, often emitting two or several stems from the same root, the flowers larger, more distant, and extremely erect, often very numerous, beginning quite low down on the stem, and constituting a kind of leafy raceme; rather cream-coloured than white; sepals and lateral petals obtuse, the lip very blunt, leaves widely different in shape, far broader, thicker, not acuminate or (in appearance) distichous. *C. ensifolia*, on the other hand, is a smaller, more delicate and slender plant, seldom emitting more than a single stem from the root, with far narrower leaves of a

* The great confusion formerly existing betwixt our two *Cephalantheræ* and *Epipactis palustris*, all of which had *Serapias longifolia* for one of their synonyms, make it impossible to determine which of the three Mr. Woods had in view. Since *C. ensifolia* grows with *C. grandiflora* in the woods of Hampshire, that may possibly have been the species intended by Mr. W. Yet I am inclined to the belief that *C. grandiflora* (called *Serapias longifolia* by Hudson) was rather the plant meant by that gentleman, which is known to inhabit this island, and I conjecture that the station between Shanklin and Godshill was in all likelihood the rocky copses known as Cowpit Cliff and Hatchett Close, where, although I have never seen either kind, these *Helleborines* are both likely to occur.

thinner and drier texture, like those of a grass, which, however, vary much in breadth, the lowermost being sometimes very broadly lanceolate, but the upper always narrower and considerably tapering at the points, and from being in general more closely set, present a sort of distichous arrangement in appearance only. The bracts, even beneath the undermost flowers, are extremely small, short and narrow, and in those at the top of the stem very minute indeed. The flowers are confined to quite the higher portion of the stem, are much closer together or approximate, and are not found in the axils of any but the greatly reduced leaves or bracts, hence they appear subspicate, like those of *Epilobium angustifolium* for example, whereas in *C. grandifolia*, the flowers originate at or even below the middle of the stem, and accompany the larger leaves, whence they assume a sort of racemose arrangement. In *C. ensifolia* the flowers are smaller, of a purer white (not cream-coloured), and less erect, the ovary diverging more or less considerably (sometimes nearly at a right angle) from the stem. The perianth segments do not close so completely over the lip, and the sepals are in this species narrower than the lateral petals, and so acutely pointed as to be almost acuminate. The lateral petals themselves are also slightly pointed, and much broader in proportion than in *C. grandiflora*. Moreover, the anterior margin of the lip is usually slightly triangular and pointed, but this character I find liable to exception. Finally, *C. ensifolia* lasts a shorter time in flower, if it does not begin to flower earlier than *C. grandiflora*, which continues in blossom through a great part of June, whereas the other has all its terminal buds open by the close of May in this part of England, and was beginning to fade and look shabby on the 27th of that month, when my last specimens were collected. Indeed, the flowers of this species, from their more delicate texture, fade with singular rapidity on being gathered, whilst those of *C. grandiflora* merely turn partially brown. The specific characters of these species may be thus stated:

Cephalanthera grandiflora. Leaves ovato-elliptical to elliptic-lanceolate; bracts longer than the glabrous germen; flowers distant, subracemose, sessile, quite erect; sepals and lateral petals obtuse, connivent on the included, very blunt and rounded lip.

————— *ensifolia*. Leaves somewhat two-ranked, the lower lanceolate, the superior very narrow, ensiform; bracts much shorter than the glabrous ovary, the highest extremely minute; flowers approximate, subspicate, sessile, more or less diverging; sepals narrower than the acute lateral petals, subacuminate, connivent; lip included, obtuse or slightly pointed.

C. ensifolia is perhaps more decidedly a plant of hilly elevated woods than the other, and ranges apparently farther to the northward, both in Britain and on the continent. The flowers in each, but more particularly in the larger species, look like buds just about to open, and in form remind one of miniature tulips or the blossoms of *Chelone glabra*. *C. rubra*, a very rare English plant, might nevertheless be found with its congeners in this county.

Malaxis paludosa. In spongy bogs (parasitic ?), on Sphagnum and other mosses ; rare. The present Dean of Winchester, the very Rev. Dr. Garnier, told me he believed he once found the *Malaxis* in this island, and it is included in a short anonymous list of Isle-of-Wight plants found in 1818, sent me by my friend Miss E. Sibley, but the authenticity of which is discredited by the mention therein of *Echinophora spinosa*, *Hieracium* (*Crepis*) *paludosum*, and *Polemonium cæruleum*. We have few places here suited to the production of *Malaxis paludosa*, but the following are those where the search for it would have the fairest chance of success :—The Cranberry swamp in the valley of the Medina, and on Rookly Moors ; the marsh at Easton, boggy parts of Colwell Heath, and the bog at Cockleton, near Cowes ; also on parts of Blackpan and Lake Commons. Bere Forest, near Wickham ; Rev. Messrs. Garnier and Poulter in Hamp. Repos. On bogs betwixt Southampton and Rownam ; Merrett. Southwick, behind Portsdown, 1840 ; Mr. Jansen ! Very fine and abundant by a stream in a boggy valley near Bournemouth ; Mr. Borrer (in litt.). I searched long and carefully last autumn for this plant in what, from his always accurate and minute directions, I have no doubt was the exact spot intended by my kind friend, but could not find a specimen. Is the *Malaxis* fugacious, or periodical like others of its order ? *Sturmia Læselii* (*Liparis*, *Hook. Lindl. &c.*) is coupled doubtfully with *Malaxis paludosa* under the older names of *Ophrys paludosa* and *liliifolia* in the anonymous catalogue above referred to, as found in this island, and the Dean of Winchester has intimated to me a similar report. Although this rare species, yearly becoming rarer by draining, has hitherto been found exclusively in the eastern midland counties, I know not any reason why it should be confined to that part of England. The absence of bogs of any extent in the island certainly militates in some measure against the probability of its occurrence in this division of the county. Miss E. Sibley writes me : “ *Cypripedium Calceolus*, I am told, grows at Bordean ; I have often looked for it, and doubt its existence.”* My doubts are not less than

* Amongst such plants as *Rosa alpina*, *Veratrum album* and other startling novelties

my friend's as to the truth of the statement, and yet I know not why the discovery of the *Cypripedium* in Hants or any other southern county should be deemed improbable, beyond the fact that it has hitherto occurred only in the north of England. But the species is not essentially a northern one, being sparingly distributed over the greater part of central Europe, in the north of France, Belgium and Germany, chiefly in hilly situations and on calcareous rocks, conditions abundantly fulfilled in this part of the kingdom. The discovery of such plants as *Habenaria albida*, *Listera cordata* and *Campanula latifolia* in the south of England, all of which we have accustomed ourselves to look upon as appertaining to the north of our island alone, should encourage us to hope that many of the plants of Yorkshire, and even of Durham and Northumberland, may eventually be detected in these southerly parts; of course in diminished frequency and abundance. I have before remarked (*Phytol.* ii. 1000) that *Sesleria cærulea*, banished in Britain to the limestone hills of Yorkshire, is found on dry chalk banks at Rouen, and may therefore be reasonably looked for on those of Hants and other counties where the cretaceous system prevails. I may cite *Saxifraga Hirculus* and *Scheuchzeria palustris* amongst species whose equatorial limits in Britain late researches have shown to be less contracted than for a long time they appeared to be: so in like manner we may predicate of many other northern plants a more extended range southward, in accordance with the botanical axiom alluded to in speaking of *Epilobium angustifolium*, at p. 365 of the present volume, that the equatorial boundary of plants is less exactly defined than their polar limits.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued.)

to the Hampshire Flora that have been communicated to me from time to time by correspondents, known or unknown, the Dog's-tooth Violet (*Erithronium Dens-canis*) I have been assured grows in certain of our woods, but where, I have at this moment forgotten, and am content to remain in ignorance of the station, until conducted thither and shown the plant *in situ*.

Relations of Plants to Subjacent Rocks, in the Chain of the Jura, &c.

Translated from MONS. JULES THURMANN'S 'Essai de Phytostaque appliqué à la chaîne du Jura,' &c.

THE principal agents in determining the vegetation and the flora, that is to say, the distribution of the species, are the following:—Climate, depending chiefly on latitude and elevation; then, climate being equal, the physical characters of the subjacent rocks, with the effects which result from them in reference to the hygroscopicity, the quality, and the division of soils.

The subjacent rocks, with reference to their mode of disintegration, their power of absorption, and their permeability, are divisible essentially into *eugeogenous* and *dysgeogenous*.

The eugeogenous rocks produce an abundant detritus. When it is of a clayey (*pélique*) nature, it makes humid stations that are often inundated. When it is of a sandy (*psammique*) nature, it makes loose soils that are almost always cool. When it is sandy and clayey (*pélopsammique*), that is to say, partaking of both natures, it makes stations with intermediate qualities.

The dysgeogenous rocks produce a scanty detritus, sometimes sandy, usually clayey, and always making stations more dry than those of the eugeogenous rocks.

To the eugeogenous subjacent rocks corresponds essentially the presence of a group of plants which prefer humidity, or the *hygrophiles*. To the subjacent eugeogenous clayey rocks correspond the *hygrophiles péliques*, which particularly prefer cool stations. To the eugeogenous sandy rocks correspond the *hygrophiles psammiques*, which particularly prefer loose soils.

To the dysgeogenous subjacent rocks correspond essentially a group of species which prefer a certain degree dryness, or the *xérophiles*.

The *hygrophiles péliques* accommodate themselves on the dysgeogenous soils in certain cases, and are sometimes scattered over these. The *hygrophiles psammiques* cannot usually live on dysgeogenous soils, and are suddenly arrested on meeting them. The *xérophiles* are scattered upon the eugeogenous soils in all points where these soils afford a suitable dryness.

The greatest contrasts in distribution are found among the *hygrophiles psammiques* and the dysgeogenous soils.

In proportion as we advance northward the *hygrophiles* accommo-

date themselves to the soils more dysgeogenous, whilst the *xérophiles* shun more the eugeogenous. In proportion as we advance southward the *hygrophiles* require soils more eugeogenous, whilst the *xérophiles* accommodate themselves to soils less dysgeogenous.

The extreme limits of the physical characters of soils induce vegetable sterility by three different conditions. Hard rocks absolutely dysgeogenous are sterile in consequence of their unchangeability, which is opposed to the production of detritus. The soft rocks of an eugeogenous and very clayey nature are sterile occasionally in consequence of their compactness and impermeability. The eugeogenous and very sandy rocks absolutely moveable may be and really are often sterile, not in consequence of their extreme separation, but in consequence of their mobility. The first become an element of the soil and contribute to establish at their surface fertility by disintegration, the second by division, the third by fixedness. The first are essentially dry; the second essentially humid; the third essentially divided, more or less dry according as they are more or less mobile, and, when fixed, necessarily more humid than the first, much less so than the second.

All things equal in respect of latitude and elevation, a district of subjacent eugeogenous rocks is more cool (*frais*), more humid, more watery, and probably more cold (*froid*) than a dysgeogenous district. Its vegetation is less dependent on levels, more common, more boreal, more social, usually more rich in species, and particularly more rich in plants of the lower families, more herbaceous, with roots deeper and branched, more numerous, &c. It presents characters opposite to the dysgeogenous soil.

The more aquatic the vegetation, the more is it independent of latitude and levels; the more terrestrial it is, and the more is it under the influence of those conditions. The rupestral (*saxicoles*) species of the dysgeogenous rocks are essentially the best climatological characteristic.

In a country of moderate extent, the mean annual temperature of the air, although an incomplete expression of the climate, is however an element sufficiently predominant to be in constant and appreciable relation with the principal facts of phyto-statistics, such as the localization (*cantonnement*) of groups of species the most southern, the most northern, the most alpine.

The same regions of elevation will not offer the same character of vegetation, except so far as they belong to zones almost equally eugeogenous or dysgeogenous. These regions are not then to be com-

pared together, with respect to the influence of levels, unless equal in regard to soil. The region of the plains can almost never be legitimately assimilated to the superior regions established for the mountains.

Independently of the three principal agents of distribution indicated above, there are divers conditions that circumscribe the area of species in general or of certain species in particular, as the casual limit, every plant ceasing partially,—the topographical limit, notably the chains of mountains,—the limit imposed by the extreme sociability of certain species, &c. On the contrary, other conditions extend the area of distribution, such as certain facilities of mechanical transport at contemporary epochs, historical or even geological. These divers conditions, singly or in combination, produce certain facts of distribution that, in obeying the requirements of latitude, of levels and of soils, are not however in exclusive dependence upon them. These facts, in a limited country, may be salient, and over-ride in some measure the phyto-statistical generalities attributable to the three chief agents above mentioned. But they are most usually too few to alter materially the aspect of the generalities.

The flora and the vegetation are then two essentially different things. The flora may be rich and the vegetation scanty, or the reverse. The number of species of each order is a bad comparative test between two neighbouring countries. The census (*rôle*) of each species, regarded in its quantity of distribution, ought to be the chief element of that comparison. One characteristic and widely-spread species modifies more the vegetable landscape than numerous rare species. Groups of species characteristic of a region of altitude may represent or rather characterize sufficiently the relative composition of the vegetable landscape in different districts. These species should be selected among those that contrast by their presence, their absence, or their degree of distribution, between different soils and levels.

All the facts of distribution presented in our field of study are explicable on the principles thus summed up. They are all essentially dependent on the united influence of latitude, of levels, and of the mechanical qualities of the subjacent rocks. There is no exception in this last respect, unless for certain salts soluble in water, whether of mineral or of animal origin.

N.B.—The preceding summary is translated from a very elaborate and important work, in two volumes, published at the end of 1849, by Mons. Jules Thurmann, entitled ‘*Essai de Phytostatique appliqué à la chaîne du Jura et aux contrées voisines ; ou Etude de la dispersion*

des Plantes Vasculaires envisagée principalement quant à l' influence des Roches Soujacentes.' We have preferred to retain a few of the Græco-Gallic terms untranslated. C.

Remarks on a Narcissus found near Malvern.

By JOHN ROBY, Esq.

I BEG to forward for your notice a double Narcissus, quite new, I fancy, to English Botany. It grew along with more in a meadow, far from any house or garden, near this place; but nevertheless I was apprehensive it might have escaped from cultivation. Making inquiry, however, I find that in a pasture or meadow near Lord Somers' park, at Eastnor, a few miles hence, it occurs in tolerable plenty and indubitably wild, inasmuch as it has been known there many years, and the ground unbroken within the memory of man. Here also are specimens of *N. poeticus*, I understand. I am informed, too, of another locality for the very same description of flower near Northampton, by a brook running through a low meadow; and again, if I mistake not, near Southampton, where double varieties of the *N. biflorus* do unquestionably grow wild. I am puzzled about the name, as I do not remember it in gardens, nor can I find a figure in what books I have. I should feel much obliged by any remarks or information on the subject.

JOHN ROBY.

Great Malvern, May 1, 1850.

[The plant is *Narcissus incomparabilis*. In Dillwyn's 'Materials for a Fauna and Flora of Swansea' the following notice of it occurs: "Grows in the little park at Margam, and Mrs. D. Llewellyn has shown me good ground to believe that it has continued to do so for at least two centuries—p. 36." I cite this from Watson's 'Cybele Britannica,' ii. 446, a reference to which will show that seven exotic species of *Narcissus* have been recorded as growing in Britain. The flower sent by Mr. Roby is double, or, as the cultivators have it *flore pleno*: it is very common in gardens: children know it by the name of "butter and eggs."—EDWARD NEWMAN.]

Warwickshire Habitat for Gagea lutea. By the
Rev. W. T. BREE, M.A.

THE yellow *Ornithogalum* (as it used to be called) may be considered, I suppose, a plant of sufficient rarity to justify the record of a new locality in the 'Phytologist.' It is not mentioned by Withering, who resided at Birmingham or in the neighbourhood, as a Warwickshire plant; nor is it enumerated by Purton as occurring in any of the midland counties. Early in the present month I had the pleasure of gathering roots of *Gagea lutea* abundantly in a meadow in the parish of Sheldon, about six or seven miles from Birmingham, on the Coventry road. The plants had been so grazed down by cattle, that little more than the stumps of the leaves were to be found, except where they had been protected by the bushes; and a friend of mine who had visited the spot a short time before, could meet with only two weak-flowering specimens. The merit of the discovery of the plant in this locality is due, I believe, to the Rev. Mr. Gorle, who mentioned it to the friend who directed me to it. The *Gagea* grows under bushes on the margin of a little brook about a quarter of a mile from the turnpike road, on the right hand side, going from Coventry towards Birmingham. About a mile from the 'Cock' at Elmdon, the brook crosses the road, having come down from the grounds of Elmdon Hall (also about a mile distant), the hospitable mansion of W. C. Alston, Esq., who kindly accompanied myself and friend to the spot. I regret to add that, in all probability, after the present year the *Gagea* will be entirely destroyed from this locality; a new brook course, rivalling a Roman road for straightness and uniformity, has been cut, and the old circuitous one, in spite of its natural beauties and botanical treasures, is of course doomed to be filled up and its banks stocked and leveled. I am informed, however, within these few days that the *Gagea* occurs also in other spots lower down the stream, where, let us hope, it may meet with a better fate, and long remain for the gratification of botanists who may wish to see it growing wild in Warwickshire.

W. T. BREE.

Allesley Rectory, May 18, 1850.

Notice of 'A Flora of Leicestershire, comprising the Flowering Plants and Ferns indigenous to the County. By MARY KIRBY, with Notes by her Sister. 1850.'

WE are glad to have the opportunity of announcing the publication of another county Flora; useful by itself to botanists within the county, but also increasing the usefulness and interest of those previously published, by affording the data for comparisons in local and geographical botany.

The small volume before us, however, is essentially two works in one. First, we find a list of species for the county of Leicester, with a pretty copious collection of localities for the less common; the list arranged according to natural orders, and adapted to the second edition (1848) of the 'London Catalogue of British Plants.' Secondly, at the end of the list of species under each order in the series, are various notes on the derivation of names, the medical and other uses of plants, their countries, &c. These notes are of course compilations or repetitions from other works, and have no special reference to Leicestershire or to the plants of Leicestershire. We think it would have been better to have printed them as a second part or an appendix to the true Flora of the county; and thus to have avoided the many awkward breaches of continuity in the list of species.

With some few exceptions we judge the list of species to be accurate, and perhaps nearly complete for the county. Few of the species enumerated are those decidedly unlikely to occur in that part of England; and among the likely species there are not many absentees. As an instance, however, on both sides, we may mention that *Tofieldia palustris* is entered *positively* as a Leicestershire plant, while *Narthecium ossifragum* is omitted. Now, judging by their known distribution in England, we should say that the *Narthecium* is very far more likely to be found in Leicestershire than is the *Tofieldia*; and, moreover, we fully anticipate that further investigation will show the name of the latter misapplied to the former in this case, although the authoress informs her readers that she has seen a specimen collected "near Moira, in 1828," by Mr. John Moore, a surgeon in Leicester. *Callitriche autumnalis* and *Circæa alpina* may also be entered in the dubious category, although somewhat less improbable than the *Tofieldia*.

We regret to see the *Sempervivum tectorum*, *Sedum album*, *Armoria rusticana*, and other garden plants, entered among those "indi-

genous" in Leicestershire, without distinction or qualification. This promiscuous inclusiveness seriously detracts from the authority of the Flora, as a county list of native plants, for all the doubtful or suspected species.

The authoress has been aided by several distinguished botanists, as the Rev. Andrew Bloxam, the Rev. W. H. Coleman, the Rev. Churchill Babington, the Rev. T. Butler, &c. Mr. Bloxam gives a descriptive list of the Rubi found in the county.

C.

Botanical Society of London.

Friday, April 5. George Cooper, Esq., in the chair.

The following donations were announced :—Parts 1, 2 and 3 of the *Gardener's Magazine of Botany*, conducted by Messrs. Moore and Ayres; presented by the editors. '*Journal of the Royal Agricultural Society of England*;' presented by that Society. '*Journal of the Statistical Society of London*;' presented by that Society. '*Proceedings of the American Philosophical Society*;' presented by that Society. '*Twenty-ninth Report of the Council of the Leeds Philosophical and Literary Society*;' presented by that Society. '*A Collection of Dried Specimens of the Flowering Plants and Ferns growing native within a district of the County of Norfolk, embracing an extent of about Forty Square Miles, having for its centre the Town of Fakenham*;' presented by W. L. Notcutt, Esq.

Robert Hudson, Esq., F.R.S., &c., of Clapham Common; Dr. Caspary, of Cringleford, near Norwich; W. H. Purchas, Esq., of Ross, Herefordshire; and Mrs. Lloyd Watkins, of Pennoyre, Brecknock, were elected members.

The conclusion of Mr. Coleman's paper '*On the Plants indigenous to the Neighbourhood of Horsham, Sussex*,' was read.—*G. E. D.*

Notice of 'Entwickelungs-Geschichte der Farrnkräuter. Von J. GRAFEN LESZCZYC-SUMINSKI.' Berlin, 1848.

IN the August number of the 'Phytologist' (Phytol. iii. 613) we announced the publication of this remarkable work, and gave an outline of the theory promulged by the author, reserving for a future occasion a more complete and extended notice. The subject was considered so interesting, that every contemporary journal which could possibly bring Botany within the scope of its contents followed in our wake, and before the close of the year we had *articles* all but innumerable on Suminski's discoveries. The time has now arrived for us to fulfil the promise we first held out, and to take a careful and impartial review of a theory so important to science. We conceive, however, that it will be desirable, as well as acceptable to our readers, to trace the records of fern-reproduction *ab initio*, so that each successive author may enjoy exactly that share in the ultimate conclusions to which his labours have entitled him: we shall then give *verbatim* exactly so much of Suminski's work as may be considered new to science; next we purpose briefly to recapitulate the objections urged by botanists, together with our view of those objections; and, lastly, to state the results of our personal investigation of the pro-embryo, and to compare such results with those obtained by Suminski. This portion of our observations must of course be accompanied by illustrative outline figures. And here it may as well be observed, that whereas Count Suminski professes to have confined his observations to the pro-embryo of a single species,—*Pteris serrulata*,—ours have no such limit, our specimens having been selected solely from their fitness for examination, and the species or even genus to which they belong not having been considered a matter of importance. To the general botanist this may appear a somewhat slovenly and careless method of investigation; but to those who have experienced the uncertainty attending the raising of ferns from the sporules it will be rather regarded as an advantage, seeing that the pro-embryo may, and we believe does, afford characters for generic and specific distinction, and that an error in nomenclature is likely to do more injury and create more confusion than can arise from the absence of nomenclature.

The reproductive organs of ferns have long obtained the notice of botanists, but it is surprising to find how very meagre was the information obtained respecting them. The 'Encyclopædia Britannica,' a work considered at the time as one of authority, and which obtained

a circulation positively enormous, has touched briefly and obscurely on the subject: it contains the following vague and unsatisfactory passage, under the head *Filices*, in the article Botany.

“The flowers, whatever be their nature, are, in the greater number of genera, fastened, and, as it were, glued, to the back of the leaves; in others, they are supported on a stem which rises above the leaves, but in some they are supported on a flower-stalk, as already mentioned. The stamina are placed apart from the seed-bud in a genus termed by Mr. Adanson *palma filix*; in the other ferns, where we have been able to discover the stamina, they are found within the same covers with the seed-bud.”—iii. 470. Here, then, is an absolute mention of ascertained male and female organs; but it is impossible to form the least idea of what the writer really intends to convey;” indeed, the subject is scarcely worth an inquiry, seeing that we cannot suppose the author of so loose and vague a definition to have discovered any organs that have escaped the more careful investigation of botanists during the fifty years that have elapsed since the publication of the volumes in question.

Subsequent publications show that the subject of reproduction has also obtained the notice of cultivators. The following passage, published almost simultaneously with the foregoing, will be found at page 93 of the second volume of the ‘Transactions of the Linnean Society of London.’

“*Account of the Germination and Raising of Ferns from the Seed, by Mr. John Lindsay, Surgeon in Jamaica.*—To enable me to observe the germination of the seeds with ease and certainty, I mixed some of the powder with some of the mould it was to be sown in, and by the help of the microscope was soon able to distinguish readily the different parts of the powder or fructification from the particles of mould in which it was sown. Having collected the dust of some of those ferns which, from the number of their young ones rising everywhere, promised to grow readily, and sown it in a pot, &c. * * * * I observed no alteration till about the 12th day after sowing, when many of the small seeds had put on a greenish colour, and some were pushing out their little germ, like a small protuberance, the rudiment of a new fern. This little protuberance gradually enlarged, and they had acquired small roots, and the remains of the little seeds were still discernible where the roots of the infant plant commenced. Although the young ferns were now very conspicuous by the microscope, the naked eye could see nothing but a green appearance on the surface of the mould, as if it were covered with some very small moss: this

was the numberless young plants from the quantity of the seed sown. In some weeks this moss began to appear to the naked eye like small scales, which gradually enlarged: they were generally of a roundish figure, somewhat bilobate, but sometimes more irregular; they were of a membranous substance, like some of the small lichens or liverworts, for which they might readily be mistaken, and of a dark green colour. At last there arises from this membrane a small leaf, different from it in colour and appearance, and shortly after another still more different. Now each succeeding leaf grows larger than the last, till they attain the full size, and are complete in all their parts and discriminating characters of their respective species."

Several figures accompany the paper, showing the marchantimorphous pro-embryo, and the mode in which the first circinate frond arises from it. We can say but little in commendation of these illustrations. Knowing what they propose to represent, we at once recognize them, but we doubt their affording any clear idea to those who were not previously perfectly familiar with the objects themselves.

The tenth volume of the 'Transactions of the Royal Society of Edinburgh,' dated 1826, contains a paper on the germination of ferns, very much more elaborate and precise than either of the preceding. It is from the pen of the Rev. John Macvicar, of Dundee, and correctly figures and describes the pro-embryo in its earliest stages.

The first volume of the 'Magazine of Botany and Zoology,' dated 1837, contains a paper intituled 'Observations on the Germination of Ferns,' by Mr. J. Henderson. This is somewhat more diffuse and more explanatory than that last mentioned: it is however principally horticultural, containing ample directions for the cultivation of these minute vegetations. The description of the first germination and also the figures are better than any previously noticed: the former we now extract.

"The first trace of germination is indicated by the appearance of a number of exceedingly minute green specks on the surface of the mould: if one of these is placed under a microscope, it will be found that the sporule has burst open into two nearly equal halves, and a small greenish body occupies the lacerated orifice. This is, as far as I can ascertain, a single cellule, the inert body which was contained in the sporule called into life. The sporule is therefore composed of two parts, namely, the external integument and the internal cellule. The latter swelling beyond the capacity of the former bursts it open, and is then elongated a little beyond the ruptured edges of the integument. From the anterior apex of this primordial cellule

another is emitted, generally of a spheroidal form, and about the same time an exceedingly minute pellucid fibril is emitted from its posterior end.

“The first indication of the formation of a new cellule is the emission of a small ovate body from the anterior end of the previously formed one: at first it is almost colourless, and appears like a mere exudation of sap; as it advances, its almost liquid surface is gradually changed into a greenish pellicle, and the cellule then swells into a spheroidal form; but this form is very soon altered when in its turn it has protruded a new cellule. This last, originating on the convex apex of the preceding (from which it appears to draw the liquid necessary for its own formation), is during its enlargement gradually drawn closer and closer to the other, the convex end of which finally becomes concave as the two surfaces approximate and form the partition between one cellule and another.

“The manner in which the cellules increase varies in different species. In some a single cellule is emitted from the primordial one, and from the end of that another, and so on to the amount of four or five, before any lateral increase takes place. They then begin to increase rapidly to the right and left, ultimately forming two roundish lobes, with a deep intermediate sinus. As the cellules are added, delicate fibrils issue here and there from their lower surfaces at or near their union with one another, taking a downward direction, and finally insinuating themselves into the pores of the soil. The lobes continue to increase externally until they have attained a certain size, when all external increase ceases: the primary frond is then composed of a single lamina of cellules, which diminish in size from the centre to the circumference, and in appearance very much resemble the thallus or lobed frond of some *Hepaticæ*.

“But this is only one of the forms which the primary frond assumes. Some increase more rapidly at first, and soon acquire a circular or reniform shape, increasing by the addition of cellules at the circumference; others divide into a number of lobes, standing nearly upright; while some produce one lobe after another, the lobes being recumbent, one lapping over the other. Some again have both surfaces covered with minute pedicellate glands; while in others the glands are only found on one side of the frond; and some, as the different species of *Adiantum*, are perfectly smooth and naked.

“When the lobes have attained a certain size, external increase ceases. A slight swelling may sometimes be perceived of the cellules lying at the bottom of the sinus, and between the bases of the two

lobes, which are of a large size: from the lower surface of the space composed of these cellules a number of small fibrils are sent out, which penetrate a short distance into the soil, and supply the whole cellular body with nourishment. They are most numerous under what may be termed the base of the primary frond, namely, where the lamina first begins to widen; and between this and the bottom of the sinus is the space on which the little knot of cellular matter is elaborated, in which the first gyrate frond and the radicle originate.

“The process by which this is produced consists, in the first instance, in the emission, from the lower surface of the above-mentioned cellules, of a number of others, generally much larger in size, of an hemispherical form, and proceeding at right angles to the plane of the cellules on which they originate. These arise very near to one another, and some unite into a confluent mass, forming a thick coating on the surface of the other cellules. From this coating others are protruded, which in like manner become confluent, and this cellular mass, tapering as it accumulates, terminates in a blunt or rounded point.

“Previous to the development of the frond and radicle, a further accumulation takes place at the summit of the cellular knot, which now begins to swell out at two opposite points. The form of the knots varies in different species. In some it is round or hemispherical; in others nearly flat or even hollow, in which case the cellular swelling is on the upper surface (sometimes, but very rarely, the knot itself is produced on the upper surface); some, again, are surrounded by short detached filamentous processes, originating on their surface, and composed of elongated, almost colourless cellules. These are the incipient paleæ or scales which surround the caudex of some ferns in a more advanced state; in some species, indeed, they assume the characters of flat, tapering, incurvate, membranous paleæ even before the gyrate frond is developed.

“There is a remarkable similarity in the appearance of the cellular knot at this stage of its growth to the formation of the gemmæ or buds produced in the axillæ of the leaflets, and on the surface and the margin of the fronds of some ferns, such as *Polypodium proliferum*, *Asplenium viviparum*, &c. In the latter case, however, several fronds are developed before any root appears, but in the former the first gyrate frond is almost uniformly preceded by a root.

“The production of the important body above alluded to, is the ultimate end and effort of the primary frond, and as it is the point at which gyrate development commences, it may be regarded in the light

of an incipient caudex. When it is matured according to some one of the forms it assumes in different species, a root is protruded from one side of it, and soon after a small gyrate frond emerges from its summit, which, when developed, occupies the edge of the cellular knot, having the base of its stipe placed directly over the base of the radicle. The last immediately descends into the earth, while the former, rising from under the primary frond, opens out into a small simple or lobed leaflet. When this is matured another is sent out, and the same process is repeated, a new root being in general added with each successive frond. The cellular mass in the meantime accumulates, and is gradually converted into a central caudex. The primary frond having completed its office withers and decays, while the characters of the perfect fern become more and more apparent, as one frond succeeds to another."—p. 335.

It is no part of our design to investigate with a view to criticism these preliminary quotations: our readers will not, therefore, draw the conclusion that we assent to Mr. Henderson's suggestions because we make no attempt to refute them: we wish merely to trace the history of these observations up to the present time; and, as we have already stated, shall express our own views hereafter.

On the continent the subject has received more careful investigation than with us. Agardh has figured the pro-embryo and the development of the first circinate frond more faithfully than either of the authors we have cited (see *Lehrbuch der Botanik*, pl. 3, figs. 40—42).

We now arrive at that discovery which originates the question to be considered. In the year 1844, Nägeli found on the under surface of the pro-embryo of ferns bodies which he considered absolutely analogous to what are termed the antheridia of the Musci, Hepaticæ and Characæ. In the '*Zeitschrift für Wissenschaftliche Botanik* von M. J. Schleiden und Carl Nägeli,' published in Zurich, he described these organs with great minuteness and accuracy; but his conclusions differ from those of the author whose work is the subject of these remarks, inasmuch as he regarded the larger organs or pistillidia of Suminski to be absolutely identical with the antheridia, but to have attained a more advanced stage, and exhibited a more perfect development. Suminski, criticising this view, asserts that "Nägeli was guided by a false principle in his researches, since the bodies in question are readily distinguishable as two separate classes of organs, whether we regard their actual structure or the physiological functions they are destined to perform." The soundness of this criticism we again leave to the judgment of others, and proceed to a literal

transcript of Suminski's views, premising however that we omit entirely his detailed account of the germination of the sporules of *Pteris serrulata*, on which he informs us all his observations have been made, because his descriptions do not differ sufficiently from those of Henderson, above cited, to render them of general interest, or of importance in the present inquiry.

“On placing the pro-embryo of a fern under the microscope, certain gland-like, globular cells will be seen projecting from its under surface, and occasionally, but not so commonly, from its margin. As the pro-embryo advances towards maturity, these bodies increase in number, and principally occupy that basal portion of the under surface from whence the rootlets may be observed to issue. Some species of ferns, and especially *Pteris serrulata*, are remarkable for the great number of these bodies. These globular protuberances originate in a sack-like elongation of particular cells of the pro-embryo, but a free cell is soon formed in their interior containing a homogeneous mucilage, and within this, transparent globules or distinct nuclei with nucleoli. As soon as this interior cell has so far increased in size as to fill the original projecting sac, it is divided by a septum from the surface of the pro-embryo, and thus attains the character of an independent organ. A third cell is often formed beneath this septum, and being flattened above and below, serves as a support to the upper cell, which frequently, at a very early period of its existence, displays in its interior new and very minute cellules, filled with a granular substance; these are various in number, but are often arranged with great regularity; they gradually become more distinct, at last filling up the parent cell, which has the appearance of a sac distended with granules, the granules themselves from mutual pressure receiving a parenchymatous appearance. When the parent cell has attained maturity, it bursts open at the top, and discharges a number of small round bodies enveloped in mucilage. I have observed in some cases a rythmical motion uniformly pervading the whole of the discharged mass: the discharged bodies very shortly after their escape from the parent cell usually exhibit a rotatory motion on their own axes; each of them unfolds a spiral filament, which however remains attached to the delicate cellule [in which it was contained], and performs a rapid revolution round its axis.

“As Nägeli has described with great accuracy the various motions of these spiral filaments, it appears to me unnecessary in this place to reiterate his observations: I must, however, remark that I have discovered on the clavate anterior extremity of the spiral filament very

delicate cilia, of considerable length; a strong artificial light is required to make them out distinctly, and they are best observed when the rotatory motion of the spiral filament has somewhat abated. About six of such cilia appear on each filament, and after this ceases to move they also gradually become quiescent, and are then so closely applied to it as almost to elude observation: still the movements of the cilia endure longer than those of the filament, and not unfrequently recommence after having once entirely ceased. Neither when in full motion, nor yet after motion has entirely ceased, can the figure of the spiral filament be clearly made out, and this is owing to two causes: *first*, its own convolutions and the movements of its attached cilia; and *secondly*, because after its motions cease its figure entirely alters, and it becomes a collapsed amorphous mass. It is, therefore, most essential that a moment for observation be selected when, although mature, it still remains within its cellule, or occupies a good and exposed position in the field of view. Under such circumstances it will be seen to exhibit two or three convolutions, the clavate extremity being pressed against the wall of the cellule. It should here be remarked that the clavate extremity of the filament contains a lengthened vesicle in its interior, and also that the other extremity tapers into a filiform tail, and terminates in a minute knot."

The author regards the parent cells above described as male organs, or antheridia; the filaments which they contain as spermatozoa, granules of pollen, or as the analogues of pollen-granules: and he forthwith proceeds with a description of the female organs or pistillidia, in the following words.

"In addition to the cells containing the spiral filaments above described, we find on the under surface of the pro-embryo, and located nearly in its marginal sinus, other bodies of greater magnitude and no less important functions. These are hollow oval bodies, and consist of a papilla composed of ten or twelve cells; while the first-mentioned [the antheridia] rarely contains more than one. The number of these [pistillidia] is very various, sometimes only three and sometimes as many as eight. They also differ from the preceding [the antheridia] in their mode of origin, and in their structure. That they are not identical with them, is proved by their mode of development."

Here we must again pause for a moment to invite the reader's earnest attention to what follows, because of all writers on this subject Suminski alone insists on this difference; Nägeli, Schleiden and others maintaining that the supposed pistillidia are merely antheridia in a more advanced stage. Seeing, then, that we are dealing with a

controverted point, and one on which we may have much hereafter to say, we have endeavoured to render the author's words as exactly as possible.

"In the origin of such an organ the cellular layer [of the pro-embryo] becomes thickened by the formation of new cells. By this process a large, globular, intercellular space is formed, having a contracted orifice at the exterior extremity. The latter is generally six-sided, and is closely surrounded by green and usually quadrangular cells. The larger and more remote cells contain but little chlorophyll. From the margins of the cup-like orifice arise four rather large cells, arranged in a circle, containing a transparent fluid and being without nuclei: between these is a square intercellular space, which varies in size: from each of them three more are developed, virtually one above another; so that the square space becomes elongated into a canal, which leads to the interior of the organ. The cells at the apex are usually so closely approximate as to close the orifice. On account of the early origin of the canal the cavity seldom appears uncovered.

"These bodies, so different in structural characters, possess also a different physiological function, although [by some observers] regarded as antheridia in a more advanced state of development. By continual observation I have succeeded in discovering in them the sexual apparatus of ferns, hitherto regarded as cryptogamic. In the hollow oval bodies last described I recognize the female apparatus."

The passage immediately following we do not exactly comprehend, unless its meaning be to argue that the relative position of the male and female organs points out the true office of both. The author describes the ovule, which he finds within the pistillidium and near its base, as without envelopes, and as being a simple, naked nucleus, divided into two parts; the larger upper portion, or nuclear papilla, projecting from the surface of the pro-embryo, and the lower smaller portion, or cavity for the embryo-sac, buried in its substance. In the first there is again to be distinguished—*first*, the apical orifice or opening of the nuclear papilla; and, *secondly*, the continuation thereof, or canal of the nuclear papilla, leading to the cavity from the embryo-sac. The orifice is directed towards the base of the pro-embryo.

"Before the formation of the nuclear papilla, the embryo-sac arises at the bottom of the cavity already described, in the form of a minute transparent cell: this is seated on a small tubercle, which serves as a point for its attachment. Even at this early period we may detect

within the cavity containing the embryo-sac certain of the spiral filaments which I have already described; these are from two to five or even more in number, and are perfectly free and never enclosed in their respective cellules: for at this period the said filaments travel, by the aid of their cilia, from the burst antheridium to the orifice of the pistillidium, and entering its apical orifice, pass down the canal to the embryo-sac. In this migration they are assisted by the mucilage in which they are enveloped, and by the moisture always present on the under surface of the pro-embryo. It requires a practical acquaintance with the figure and position of these filaments to detect them after having entered the cavity: the wide apical opening of the pistillidium, which as yet scarcely projects above the surface of the pro-embryo, tends greatly to facilitate their entrance.

“It sometimes happens at this period of the impregnation that we notice a great quantity of dead spiral filaments around the cavity of the nucleus; they appear wound like an S, or like a circle or a spiral figure. However, I have but seldom observed this appearance. As the embryo-sac grows, and thus displaces the spiral filaments, the canal of the papilla of the nucleus is formed in the manner above described, and receives into it one or two, but seldom more of them; the rest fall to the bottom of the cavity of the embryo-sac. Before their entrance into it they exhibit with advancing growth a distinct swelling, which occurs especially in those subsequently received into the canal. In the meantime the embryo-sac filled with blastema has formed in its interior a parenchyma composed of several cells (endosperm), appears green, and has so increased in size that it almost fills the cavity of the embryo-sac. One of the spiral filaments penetrates by one of its extremities into the part of the embryo-sac turned towards the canal. The penetrating end is that at which the smaller enlargement is situated, which at the same time exhibits a green tint; the larger, club-shaped, granular end projects out into the canal of the papilla of the nucleus: this usually encloses a little pear-shaped cellule. Here an obstacle of no slight importance interferes with the observation: the delicate filiform connexion of the two ends of the spiral filament is usually torn by the pressure of the glass covering the preparation, and thus we see only the separated ends, one in the canal, the other in the cavity for the embryo-sac. As soon as the first swelling has reached the middle of the embryo-sac, it separates itself from the spiral filament, and now forms in the embryo-sac a closed globule, the germinal vesicle. The other end projecting into the canal dies away. This appearance must not be confounded with the

forcible tearing of the spiral filaments to which I have just alluded. The embryonary globule is produced by the union of the germinal vesicle with the embryo, and it is only attached below to the base of the cavity containing the embryo-sac by a very delicate filiform embryo-support. The colourless nuclear papilla dies away and dries up as the embryonary globule grows, and the canal assumes a brown colour. In this state it continues for a long time upon the now expanding cavity of the nucleus. Usually only one of the numerous naked ovules formed upon the pro-embryo develops its embryo. This does not appear extraordinary, since similar examples are not wanting in the vegetable world, and in many palms one only of the three original compartments is perfectly formed. An especial cause may be sought for here in the small size of the pro-embryo, which does not supply sufficient nourishment for several embryos. With the further development of one embryo, the others (the other rudimentary ovules) die. In these the mouth of the papilla of the nucleus opens, and allows the dead spiral filaments and the rest of the contents to escape. The canal, and especially the cavity for the embryo-sac, then exhibits a brown colour. In this state the latter may be most distinctly recognized. On the contrary, this part in vegetating ovules can only be observed by a most careful extract of the single organ. For while on the one hand it is covered by the still erect nuclear papilla, the want on the other hand of any peculiar colour, or of otherwise distinguishing outlines, renders the detection of it impossible. *Polypodium aureum* is, next to *Pteris serrulata*, the best adapted of all the species which I have examined. The impregnation of all the families, genera and species is just according to the above-described type; an exception occurs in the appearance on the border of the pro-embryo, even in its earliest stage, of a spiral filament-organ, differing somewhat in structure as it loses its uni-cellular aspect. Five or six parietal cells are formed, which enclose in the middle a space either filled with spiral filament-cells or hollow spaces. These structures must be regarded as monstrosities of the spiral filament-organs, since they only occur in diseased conditions, and in individuals which never produce an embryo. Such a barren pro-embryo either decays soon after its origin, or, passing into a succulent state of growth, appears much larger than is natural. In this state it resembles a *Marchantia*, and usually produces a great number of abortive ovules."

Almost immediately after the entrance of the spiral filament into the canal of the pistillidium, and its supposed contact with the ovule

at its base,—or, in other words, after the contact of the contents of the sperm-cell and the germ-cell,—a new cell is to be seen within the latter: we have thus two concentric cells, one enclosed within the other. In the progress of growth, which at this early stage is peculiarly rapid, a period arrives when the covering of the germinal vesicle can no longer be distinguished · up to this period the exterior of the two concentric globules is more deeply coloured with green than the interior one,—a difference which disappears simultaneously with the disappearance of their limits. The formation of cells now proceeds at both extremities of the embryo, by what our author calls “bipolarization.” The embryo gradually assumes an elliptical form, its longest diameter being placed transversely to the plane of the pro-embryo, and of course comprising the axis of the future plant; its anterior extremity being finally developed as the first gyrate frond, the analogue of a plumule; and the posterior extremity or radicle tending towards the ground. The formation of new cells now goes on at the tip in a twofold manner: there is a feeble growth producing the stipes, and a more vigorous growth destined eventually for the production of the leafy portions of the frond. The author considers this elliptical embryonic body the direct result of the contact above described, such contact being a “true act of generation.” The description of the mode in which the first gyrate frond is developed, and the figures which illustrate this part of the subject, are worthy of all praise: the execution of the latter leaves nothing to be desired, unless it be the confirmation of their accuracy by further observations. And here we would remark that a contributor to the ‘British and Foreign Medico-Chirurgical Review’ for October, 1849, speaks of finding Suminski’s delineations to be so completely borne out by personal observation, *in certain instances*, that he gives the Count full credit for their accuracy, even where the opportunity of testing them was wanting. The paper in question is intituled ‘Physiological Botany,’ and displays an acquaintance with recent researches that is as creditable to its author as it is uncommon in journals of a semi-scientific character.

After completing his observations on the ascending extremity of the embryo, Suminski describes with considerable minuteness the formation of the root; but as this presents nothing remarkable or novel, we purposely refrain from introducing it into an inquiry of which it constitutes no essential element. The addition made by this learned author to our prior observations may be thus summed up: the discovery of a female apparatus or pistillidium as distinct from the male appa-

ratus or antheridium, and its fertilization by the entrance of spiral filaments, spermatozoa or pollen-granules, which escape on the bursting of the latter. His observations on the marchantimorphous pro-embryo, and the origin of the first gyrate frond, were completely forestalled by Mac Vicar and Henderson, as were those on the antheridium and its spiral filaments by Nägeli.

K.

(To be continued.)

On the Allium Holmense of Ray. By P. B. WEBB, Esq.*

WHEN treating of the geographical distribution of the *Allium Porrum* and *A. Ampeloprasum*, *L.* (*Phyt. Can.* sect. 3, p. 344), the question arose,—to which of these species should we refer the *Allium Holmense*, &c., of Ray? Published in a work of such importance as the ‘*Historia Plantarum*’ of that author, this plant naturally attracted the attention of Linneus. In the first edition of the ‘*Species Plantarum*,’ as well as in the two subsequent editions, he alludes to it under *A. Ampeloprasum*, of which he says, “habitat in Oriente et in insula Holms Angliæ,” without however citing Ray amongst his synonyms. Ray first described this plant in his ‘*Historia Plantarum*,’ 1688, as “*Allium montanum majus, Newtoni: Radix nucleis aliquot majusculis constat Allii vulgaris in modum, tunica duntaxat suffusca tecta, quam facile exuit; de reliquo integra est et candida, multas, oblongas, validas fibras demittens: caules 4 pedes altus, et cæt. Aug. floret; in parva insula Holms dicta supra Bristolium in Sabrinæ æstuario copiose provenit.*” A few years later he introduces this plant, with corrections, into his ‘*Synopsis Plantarum Britannicarum*’ as “*Allium Holmense sphærico capite. Great round-headed Garlick of Holms Island. Hujus descriptionem vide Hist. nostr. p. 1125, ubi radix ejus nucleis aliquot majusculis constare falso asseritur, est enim simplex et tunicata, duntaxat, cepæ in modum. In insula parva quadam Holms dicta in Sabrinæ æstuario copiose proveniente observavit D. Newton. Rai. Syn. 1696, et ed. 3, 1724, p. 370.*” Neither of these descriptions coincides with *A. Ampeloprasum*, *L.*, seeming rather to refer to *A. Porrum*, since almost the only tangible character

* Extract of a letter to Hewett C. Watson, Esq.

which distinguishes this latter from its congener is the absence or paucity of bulbills. All the British botanists seem to have accepted the decision of Linnæus, and from Hudson downwards describe this plant as *A. Ampeloprasum*, some* adding from books or inspection of foreign specimens the characters of the southern species, particularly that of the botryoidal sack of bulbills, which assures the rapid propagation of the species, and renders it so troublesome a weed in the vineyards and fields of the east. Mr. Babington seems to have seen the plant, and to have made his description from native specimens: he says (*Man. of Brit. Bot.* p. 305), "Bulb forming 2—4 large offsets within its coats;" the rest of his description likewise coincides with *A. Porrum*. I am therefore inclined to believe that this plant cannot be referred to *A. Ampeloprasum*, *L.*, but is merely the *A. Porrum* escaped from gardens. That very accurate observer, Mr. Borrer, likewise supposes that the presence of this plant in the Holms or islands of the Severn is the result of former cultivation; but our forefathers were much more likely to have cultivated leeks there than the acrid and useless *Ampeloprasum*. I am aware that many botanists are disposed to consider the leek as a mere variety of *Ampeloprasum*: it is difficult to ascertain this with certainty, but my own observations lead me to place it amongst those numerous esculent plants whose origin is unknown to us. Should any of your correspondents be able to visit the "Steep Holms Island," and send you from thence specimens of this plant, the question might perhaps be elucidated: you should, however, recommend to those who may undertake the task to be sparing in the collection of specimens, so as to leave for posterity sufficient remains of a species which has probably occupied its present site for more than two centuries, and which was first described by the greatest of our ancient botanists. The investigation of the other habitat of *A. Ampeloprasum* given by Mr. Babington,—"*Cliffs in Guernsey*,"—would be also interesting, as I do not find the species enumerated in any of the floras of the western departments of France.

P. B. WEBB.

* See Smith's 'English Flora,' vol. ii. p. 134.

Contents of the 'Botanical Gazette,' No. 17, May, 1850.

A Descriptive Table of British Brambles. By T. B. Salter, M.D. ["Increased observation," writes Dr. Salter, "on the multiplied forms of these variable plants, both in the wild state and under cultivation, has enabled me in numerous instances to associate several forms together, as varieties of a single species, which before were described as distinct; thus in many cases confirming my previous suspicions, and in other cases affording results which I had not anticipated." "In plants so varying as the Brambles it is easy to divide, but by no means so easy to discriminate or associate correctly. These results can only be accomplished by careful observation." "In plants so varying, if the characters be too minutely given, few plants will agree with the description: the species must either be multiplied *contrary to fact and truth*; or varieties, inconveniently numerous, be introduced; for it is found that even in the descriptions of varieties some considerable latitude must be allowed, or they become endlessly numerous." Dr. Salter enumerates twenty-one species, exclusively of the Raspberry and herbaceous Brambles.]

Literature: Contents of various botanical journals.

Proceedings of Societies: Botanical Society of Edinburgh.

Miscellanea: Press for drying plants. Victoria regia. Obituary.

Ditto, No. 18, June, 1850.

On *Viola canina* and its allies. By Charles C. Babington, M.A. ["So much has been written in English journals concerning *Viola canina*, that it may seem altogether unnecessary to add to what has been well stated by others; but the unsatisfactory account of that plant and its allies which is contained in my 'Manual' (ed. 2, p. 36) having necessarily directed my attention to the subject, it may perhaps not be considered as intruding upon the notice of English botanists if I point out the characters by which I propose to define the species, and make a few remarks upon each of them." Thus writes Mr. Babington; but we believe that he deceives himself in the reason that he alleges. His attention was doubtless "directed to the subject" by the announcement of his own and the late Mr. E. Forster's printed errors respecting these plants, and by something very like a denouncement of their persistence in errors that had been publicly pointed out

in the 'Phytologist' and elsewhere. Mr. Babington now distinguishes three species; namely, 1, *V. sylvatica*; 2, *V. canina*; and 3, *V. stagnina*. The first of these three includes the *V. canina* of Smith and other English authors, and the *V. flavicornis* of Forster in 'Supplement to English Botany': it is the "Gerarde's Violet" of Mr. Watson in the present volume of the 'Phytologist.' The second includes the *V. flavicornis* of Smith, and also the *V. lactea* of Smith united therewith as a variety: it thus corresponds with the "Dillenius's Violet" and "Smith's Violet" of Mr. Watson in the 'Phytologist' (Phytol. iii. 635). The third name is applied to a larger and longer-leaved species, occasionally mistaken for or mingled with Smith's *V. lactea*, and first alluded to, we believe, under name of *V. stagnina*, in the 'Cybele Britannica,' nearly four years ago. Although it may require some little alteration still, Mr. Babington's present account of these Violets is clear and satisfactory, and is now very near the truth or Nature's realities. To take up a remark from Dr. Salter, *supra*, he has at length almost *discriminated* them into real species, instead of *dividing* them into book-species, as heretofore.]

On *Scrophularia nodosa*, *L.*, and *S. aquatica*, *Auct.* (S. Ehrharti, *Stev.*) By T. Irmisch. [Translation from the 'Botanische Zeitung.' A short paper on their mode of growth.]

Critical Notes on British Brambles. By T. Bell Salter, M.D.

Literature: Andersson's *Plantæ Scandinaviæ descriptæ et delineatæ*. Reports and Papers on Botany, printed for the Ray Society, 1849. Contents of journals.

Proceedings of Societies: Linnean Society. Botanical Society of London. Botanical Society of Edinburgh.

Miscellanea: Letter of inquiry from Mr. Borrer. Unarmed variety of *Ulex Europæus*. Botanical promotions in Paris.

Contents of 'Hooker's Journal of Botany,' No. 17, May, 1850.

On the Structure of the Ovary of *Marlea*, and Affinities of *Alangieæ*. By Benjamin Clarke, Esq.

Contributions to the Botany of Western India. By N. A. Dalziel, Esq. Extracts from Dr. J. D. Hooker's letters. Continued.

Botanical Information: Letter from Berthold Seemann. Mr. Spruce's journey. North-American Plants for the Herbarium.

Notices of Books: Paxton's Flower-garden.

Ditto, No. 18, June, 1850.

Extracts from Dr. J. D. Hooker's letters. Continued.

Mr. Spruce's Voyage up the Amazon River. Extract from a letter.

Botanical Information: Letter from Berthold Seemann. African Oak or Teak (*Oldfieldia Africana*).

Notices of Books: Thurmman's 'Essai Phytostatique du Jura.' Cactæ in Horto Dyckensi.

Inquiry for the Celtic or other ancient names of the doubtfully native Trees and Shrubs. By HEWETT C. WATSON, Esq.

NOT previously aware of his arrival in England, for only a few days' sojourn, I was agreeably surprized by a call here from Mons. Alphonse De Candolle last week. In course of conversation relative to some questions in geographical botany, he spoke of the desirability of seeking out any evidence to be afforded by old Celtic names, in support of the genuine British nativity of those plants, particularly trees and conspicuous shrubs, which are now regarded with distrust. The inquiry would be one of considerable interest, but attended with difficulties. Sufficient acquaintance with Botany to prevent any confusion between different species would be requisite, together with a very ample knowledge of the old language or languages of our islands.

Hugh Davies's 'Welsh Botanology' professes to give the old British or Welsh names of several hundred species occurring in Anglesea; and the author adds also an Appendix to show "the British generic names of those phænogamous plants in 'Flora Britannica,' which are not of spontaneous growth in Anglesey." But among the plants of Anglesea, he includes the Beech and Chestnut; giving to them the "British" names of *Custanwydden* and *Efwydden*, probably both derived from the Latin, or *Castanea* and *Fagus*. In the Appendix, too, the author has appropriated Welsh names to the *Stipa* and *Vella*, the *Eriocaulon* and *Holosteum*,—plants very little likely to have had any genuine Welsh names at all. Moreover, he states expressly that he admitted British names such as evidently were corruptions of the classic names, or taken from other languages. And when we find the "British" name of *Tiwlip* entered for the tulip, that of *Pysen* for the pea, that of *Linnea* for the *Linnaea*, there

can be no doubt that the true British or Welsh nomenclature is diluted by Davies with names made up from those of other languages. This unavoidably detracts from the trustiness of his work in many cases, although it may likely be correct enough in the main.

Now, if a botanist could show that certain genuine Irish, Welsh, Scottish, or even old English names clearly applied to any of the trees and shrubs whose nativity is disputed at the present day, and were not applicable to any other resembling trees or shrubs, this sort of evidence would go far towards removing those doubtfully indigenous into the category of true native species; and it might also assist in showing how far the species were naturally spread in the British Islands.

HEWETT C. WATSON.

Thames Ditton, June 7, 1850.

New Habitat for Thlaspi perfoliatum.

By JAMES BUCKMAN, Esq.

AT Sapperton, near Stroud, the Great Western Railway passes along a tunnel named after the village. At the top of this, towards the north end, are some old quarryings, about which the plant grows in profusion: it also occurs towards the southern end of the top of the same tunnel, about old quarryings. Found by Mr. Ball. The occurrence of this plant in or about stone quarries is curious: it is found about Eyeford, near Stow, and at the Seven-springs, near Bourton-on-the-Water, in the northern Cotteswold district, and in each in and about old quarries.

J. BUCKMAN.

June, 1850.

Discovery of Orchis hircina in Suffolk.

By E. N. BLOOMFIELD, Esq.

MR. WATSON in his 'Cybele Britannica' expresses a doubt whether the *Orchis hircina* still exists in the British Islands, and mentions that in the case of several habitats which had been communicated to him as belonging to this plant, *Habenaria bifolia* or *H. chlorantha* had been mistaken for it. I think therefore that it may be interesting to

give some further particulars respecting the Suffolk station of *O. hircina* which I had the good fortune to discover in July, 1847. I found but one specimen. The principal doubts which may arise are,—whether the plant was the true *O. hircina*; whether it grew in the locality given; and whether it was introduced. There can be no doubt that the plant was the true one, as it agrees with Smith's description in the 'English Flora,' and with a specimen in the Cambridge Botanical Museum; and indeed it is so different from any other English plant, that it is surprizing that any other could be mistaken for it. I showed it while growing and after it was gathered to several friends, and we all agreed, with Sir J. Smith, that the scent was "not pleasant," but very peculiar. There can be no doubt on the second head, because I found it myself, quite by accident. I can suggest no means by which it could have been introduced, at least from any great distance, and have no reason to doubt that it is a native. Perhaps it may be as well to mention that the meadow was laid down about fifty years ago, with seed brought from a village called Dennington, about six miles distant.

E. N. BLOOMFIELD.

Clare Hall, Cambridge.

Note on the Ovule of Orchis Morio.

By W. WILSON, Esq.

HAVING had my attention directed to this subject by the notice of Mr. Henfrey's paper in the 'Phytologist' for March last, I have carefully and minutely examined numerous ovules, in various stages of growth, with the following results.

When the ovule becomes completely anatropous, it is somewhat less than $\frac{1}{200}$ th of an inch in length, the primine being then shorter than the secundine, though it afterwards far exceeds it in length. Soon after fecundation, the ovary having swelled, the pollen-tubes are found in very great abundance, passing down under the placenta, in six dense fasciculi, to the base of the ovary. When these horizontal sections of the ovary are placed under the microscope, the masses of pollen-tubes are seen to fill up the channels formed by the incurved edges of the carpellary leaves. The diameter of the pollen-tube is somewhat more than $\frac{1}{300}$ th of an inch. By careful dissection of the ovule the pollen-tube can be satisfactorily traced into the

orifice of the secundine as far as the nucleus; but the mode of connexion with that organ is very difficult to determine, as may be easily supposed when it is understood that the nucleus is a roundish vesicle of about $\frac{1}{48}$ th of an inch in length, and that it is immersed nearly that depth in the secundine. After careful and repeated observation, I am of opinion that the extremity of the pollen-tube coalesces with the apex of the nucleus, but does not penetrate it: I have seen several cases of such connexion where the nucleus has remained uncovered, in consequence of the abnormal suppression of the growth of the primine and secundine, on parts of the same placenta which had the ovules in a normal state. The course of the pollen-tube may be traced with tolerable precision through the highly pellucid coats of the ovule, without dissection; but as it is always unsafe to depend on appearances until they have been verified by the removal of all intervening membranes, I have chosen to ascertain every fact by dissection, when practicable. I object to the expression, "nucleus covered by its own cellular coat," regarding, as I do, this cellular coat as an integral portion of the nucleus. The phrase, "embryo-sac had lost its proper cellular coat," also seems to me ambiguous. This cellular coat I suppose to be the external membrane of the nucleus, and if so, I consider that it is not obliterated, though it appears to be at length ruptured at the apex by the prolongation of the contained ovoid embryonic body (whether it be embryo or albumen, or both, is not quite clear) to afford egress to the articulated filament. While in its ovoid shape it is less than $\frac{1}{30}$ th of an inch in length, with one or two horizontal septa. To detach it at this stage uninjured, it is requisite to employ very careful dissection; but immediately after it has begun to prolong its apex, it can be very easily made to slide up the secundine by gently pressing at its base, proving that the means of egress by that passage are already provided. The production of the confervoid filament is most certainly a normal process, and is easily observable. At the time when it begins to grow, the ovule is about $\frac{1}{40}$ th of an inch in length, having the base of the primine somewhat inflated, leaving a hollow space below the base of the secundine, of about the same length as the secundine, or $\frac{1}{20}$ th of an inch.

That the "pistillary cords" consist wholly of pollen-tubes with numerous abrupt sinuosities, is sufficiently evident; for they can be traced to the pollen-granules, and are absent before fecundation.

The "minute black atoms" of the nucleus appear to be small granules of starch: they are somewhat larger than active molecules, and have pellucid centres.

It seems to me a *begging of the question* to say that the "two or three vesicles" in the interior of the embryo-sac, or embryonic body, "undoubtedly existed before the pollen-tubes entered the foramina of the ovules;" at least, I can find no actual proof of this fact; nor is it at all clear to me that the unimpregnated nucleus of itself constitutes or contains any "germinal vesicle," if by that term is meant something which may develop into an embryo without any transfusion or addition of matter from the pollen-tube. It has still to be proved whether this vesicle does itself undergo such development, or whether it is merely the matrix within which the "pollinic fluid passing through the intervening membrane" is transformed into an embryo. Moreover, it is still possible that further scrutiny may show that there is an actual penetration of the nucleus by the pollen-tube.

It may be useful to contrast the ovule of this plant with the very singular one of *Veronica hederæfolia*, where, almost immediately after fecundation, the neck of the nucleus is protruded, and its forked glandular extremity firmly embraces the funiculus, forming in every sense of the word a *suspensor* to the body of the nucleus, which bursts out from its integuments and becomes a perfectly naked and much enlarged mass of albumen, in shape not very unlike that of a cowry shell, having the suspensor and the chalaza attached to the hollow part of the cup. The change of the ovule is so rapid that the mode of access of the pollen-tube cannot be observed.

W. WILSON.

Warrington, June 7, 1850.

*A Visit to the Lily Field, or Narcissus poeticus in Warwickshire ;
and a Note on Narcissus lobularis.* By the Rev. W. T.
BREE, M.A.

SOME years have now passed over since I was informed, on authority that I could not doubt, that *Narcissus poeticus* grew wild in great abundance in a certain field in the adjoining parish of Fillongley; and in proof of the correctness of such information, roots were sent to me from this locality, which have flourished in my garden ever since. Though often intending to go and see the "Lily Field"—for such is the appellation by which it is familiarly known in the neighbourhood—it, somehow or other, has so happened, that I never did pay a visit to it till the 5th of the present month of June, when the *Narcissuses* were

in full bloom and beauty. And though very many of the flowers had been previously gathered by children and other persons who had been before me (for great numbers of people come every year to see the sight), I was truly gratified and astonished at the magnificent display of pure white blossoms which presented itself to view. A large portion of the field was one sheet of white,—an extensive snowdrift, so to say, in June! One might have thought that all the *Narcissuses* out of all the gardens in the county had been mustered together into this spot in order to make one grand exhibition. They grew in large dense masses; so much so as to overpower, and apparently almost obliterate, the grass and other herbage. I remarked to Mr. Smith, the occupier of the land, that beautiful as these flowers were, they must nevertheless be very prejudicial to his crop; but he assured me, he thought not, for he always observed, that at mowing-time he had as much grass where the *Narcissuses* were thickest, as in any other part of the field. I should describe the field as being a sort of upland meadow, and it is situated near — *too* near to please a botanist — to an ancient farm-house called Glaber's, or Glaver's Hall, about two miles west of the village of Fillongley. Botanists of the present day, I believe, are disposed to look upon *Narcissus poeticus* in the light of a naturalized species only, and to exclude it from the list of genuine natives. I am not going to controvert that opinion. Indeed, there are several suspicious circumstances, which, to my mind, militate against the notion of the *Narcissus* being indigenous in this particular locality, whatever it may be in other places. First, who knows but the "Lily Field" may be the site of a former garden or pleasure-ground attached to Glaver's Hall when that was a place of more consideration than it may seem to be at present? But this is only begging the question; at any rate, however, the field (as already hinted) is rather too near to the ancient farm-house, to be free from all suspicion on that score, being separated from the present garden only by an occupation road and an intervening portion of the farm-yard. Secondly, the *Narcissus* is confined to this one field, with the exception, however, of one or two small patches in the orchard, which nobody would take to be wild. It does not occur in other suitable situations in the neighbourhood, as a true native would be likely to do. And thirdly, a large portion, perhaps nearly half of the *Narcissuses* at Glaver's Hall, produce double or semi-double flowers, *i. e.*, flowers with one or more imperfect petals issuing out of the cup. At the same time there is no record or tradition of the field ever having been a garden, or of the *Narcissuses* having been planted where they are now

found. But there they are, in surprising profusion, and have been time out of mind, and nobody knows how they got there. We may say with Antigone on a different occasion,

* * * * * "these are not of to-day,
Or yesterday, but through all ages live,
And none knows whence they sprung."

Being on the subject of *Narcissus*, I feel inclined to call attention, through the pages of the 'Phytologist,' to another little-known species, which appears to me to have a fairer claim to be considered native. I allude to a perfectly distinct daffodil found wild more than twenty years ago near Tenby, in Pembrokeshire, by the late Joseph Boulton, Esq., from whom I received roots which I have long cultivated in the garden. I have given this plant to many botanists and horticulturists, none of whom had any previous acquaintance with the species; nor have I ever seen it in any garden, nursery, or collection, except as derived from the above source. Not being, therefore, like *Narcissus poeticus*, an old and favourite inhabitant of our gardens, it cannot very well be a garden-stray or outcast, seeing it is quite unknown to our gardens till of late years, unless indeed it occurs in a cultivated state around Tenby; on which point I cannot speak. In 1830 I sent the Tenby daffodil to the late Mr. Haworth, who pronounced it a new and undescribed species, and recorded it in the 'Philosophical Magazine' for May of that year, and in his '*Narcissinearum Monographia*,' under the name of *Narcissus* (Ajax) "*lobularis*;" and so far as I know, it is nowhere else described. I also sent fresh specimens to Mr. Sowerby, who afterwards showed me an admirable drawing which he had made of the plant, with a view, as I understood, to its publication in the 'Supplement to English Botany;' and why it has not appeared in that publication, I am unable to state. From *Narcissus Pseudo-narcissus* it differs in being a taller and more robust plant, the petals and cup being of an uniform bright yellow, and the latter divided into six lobes, whence its specific name of "*lobularis*." In its time of flowering, it ranks among the earliest of the tribe, expanding its blossoms sometimes in February, though more usually, perhaps, it corresponds with Shakspeare's

"Daffodils,
That come before the swallow dares, and take
The winds of March with beauty."

I strongly recommend the Tenby daffodil to the notice of all lovers of floriculture, as a highly ornamental species, of free and hardy growth, and well worthy of cultivation, were it for its beauty alone, to say nothing of its rarity.

W. T. BREE.

Allesley Rectory, June 14, 1850.

Botanical Society of London.

Friday, June 14. Arthur Henfrey, Esq., V.P., in the chair.

The following donations were announced: — ‘The Tourist’s Flora,’ by Joseph Woods, Esq., F.L.S., &c.; presented by the author. ‘Fourteenth Annual Report of the Warwickshire Natural History Society’; presented by that Society. ‘Proceedings of the American Philosophical Society’; presented by that Society. ‘A Collection of Leicestershire Rubi,’ to illustrate Miss Kirby’s ‘Flora of Leicestershire’; presented by the Rev. Andrew Bloxam. British Plants from Mr. J. Carroll, Mr. R. G. Holland, and Mr. R. Withers.

The Chairman read a paper “On *Sagina apetala* (L.), and *S. ciliata*, (Fries), with some remarks on the mode of discriminating species.” After alluding to a paper by M. Beneken, published in the ‘Botanical Gazette’ for April, 1849, and another by Mr. Babington on the same subject, which appeared in that journal in July, 1849, the author stated that he had investigated many specimens of the plants, English and French, derived from his own collections and from the herbarium of Dr. Cosson, of Paris, together with an English example of *S. ciliata* named by Mr. Babington, and authentic specimens of *S. patula* (Jord.), from that author. The conclusion he had arrived at was that the *S. ciliata*, with which *S. patula* (Jord.) appears to be identical, as stated by MM. Grenier and Godron, is but a variety of *S. apetala* (L.). He had found the mucro on the sepals inconstant on the same plant, occurring on specimens with all the other characters of the form taken on the true *apetala*. The degree of divergence of the sepals in the fruit, he was inclined to attribute to the existence and size of the petals, which are persistent. The form *apetala* (which has petals and is usually ciliated) grows on drier and more exposed spots; the form *ciliata* generally in the shade, or damper situations. The author then drew attention to a plan for determining critical species which are at present so perplexing to European bota-

nists, as he thought that by the aid of some of its country members the Botanical Society might do much towards settling the question in many cases. Regarding condition, such as aspect, climate, soil, &c., as the usual cause of variation, he did not look upon cultivation of a plant in artificially prepared land, in one place alone, as a satisfactory test of the value of characters, as artificial culture has rather a tendency to perpetuate varieties than to reduce them to their types. He suggested that a few, say six to twelve, botanists residing in as distant parts of the country as possible, should form an association for cultivating critical plants, all corresponding with a metropolitan botanist, who might cultivate here also, and who should receive from any source specimens of plants to be carefully preserved, together with seeds to be distributed to all the cultivators; these should make a return annually of specimens of the plants they have raised, with their remarks, and when a change has taken place seeds also to be re-distributed. By the help of a certain number of co-operators, one residing in the West of England, another in the East, another in the midland counties, others in the North and in the different climatal regions of Scotland, or if it were possible, by the help of a member residing in every one of the districts given in Mr. Watson's 'Cybele,' the doubtful forms might be exposed to every variety of condition, while the preservation of the original type specimens would render all the observations at once applicable as exact scientific evidence. If a number of provincial botanists will agree to carry on these observations, Mr. Henfrey stated that he was willing to take charge of the metropolitan part of the work, to receive and distribute the specimens and seeds, and also to cultivate them for the London climate in the garden of the Royal Botanic Society.—*G. E. D.*

Note on the return of Corollas normally Irregular to a Regular Form. By JAMES HUSSEY, Esq.

BELIEVING the return of the corolla of irregular flowers to a regular form, though occasionally observed, to be rare, the following instance may not perhaps be unworthy of being recorded in the pages of the 'Phytologist,' especially as the subject to which it relates, namely, the normal state of the floral whorls, is one of very great interest and importance in Botany. In a crimson and white garden variety, then, of *Antirrhinum majus*, I observe the two uppermost flowers upon one of

the racemes to take the form known as "Peloria," the rest retaining their usual character. In both of these uppermost flowers the fifth stamen, which is usually rudimentary only and abortive in this genus, is, with its anther, fully developed, and in consequence apparently of its presence their corolla loses the ringent shape, and assumes a regular form, in one flower with five, and in the other with six lips, provided with their downy palates, leaving an open, central space in which lie the large, full-grown anthers. In what state of development the pistils may be, I am unable at present to determine, being unwilling to destroy these singular blossoms.

This remarkable condition of flowers, which are commonly irregular, was long believed to be peculiar to *Linaria vulgaris*, but according to De Candolle (*Organographie Végétale*, i. 519), has been noticed not only in other species of *Linaria*, but also in the genera *Antirrhinum*, *Digitalis*, *Sesamum*, *Galeopsis*, *Viola*, and *Orchis*. It would be interesting and instructive, should any of your readers meet with instances of this kind in those or other irregular genera, were they to note them and make them known in your valuable periodical.

JAMES HUSSEY.

Salisbury, June 18, 1850.

Note on an Aberration in the Floral Envelopes of a Fuchsia.

By EDWARD NEWMAN.

IN this instance the organs present were as follows:—

1. Sepals four, of normal size and figure.
2. Stamens eight; four of them, greatly exceeding the sepals in length, arise from the exact centre of the base of the sepals, one to each, the other four exactly equalling the sepals in length, alternate with the first, and arise from the notches between the sepals. The stamens, indeed, are quite normal; the filaments white, untinged by any colour; the anthers of normal size, and polliniferous.
3. Pistil of normal form and length.

The noticeable character is the entire absence of the interior floral envelope; not the slightest trace of this is visible. The plant produced no flowers differing from the one described.

A few queries arise for the morphologist to solve. First, How are the petals represented in this instance? Secondly, Supposing them converted either into the four shorter stamens or the four longer sta-

mens, will there not then be a diminution of the aggregate number of parts? Thirdly, Is it a doctrine of morphology that in a species or genus in which all the parts of the flower are normally present, one series of parts may be totally absent and unrepresented?

Clarkia pulchella frequently has the same aberration; and Lindley says that in *Skinnera*, an allied genus, the petals are *always* wanting.

EDWARD NEWMAN.

Devonshire St., City, June, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 917).

Iris Pseud-acorus. By river-sides, in shallow ditches, ponds, and low marshy or moory meadows; abundantly in all parts of the county and Isle of Wight.

— *fœtidissima.* In groves, thickets, pastures, along hedges and borders of fields; extremely common in most parts of the Isle of Wight, but very rare on the mainland, excepting on or near the coast. Everywhere about Ryde, in Quarr Copse, Apse wood, &c. Profusely all over the Undercliff, to the verdant aspect of which in winter the tufts of dark evergreen leaves most materially contribute. Woods, &c., about Cowes, Yarmouth, Freshwater and elsewhere, abundantly. Frequent, if I recollect right, about Southampton, towards Netley, but I have not paid much attention to its distribution in mainland Hants, where it is far less plentiful than on this side the Solent, even on the coast. Not unfrequent in Hayling Island. About Porchester and Porchester Castle. Bitterne (near Southton), Rev. Messrs. Garnier and Poulter in Hamp. Repos. Fontley, Mr. W. L. Notcutt. Extremely rare about Winchester, Dr. A. D. White. In a lane betwixt West Meon and Privet, Miss Sibley. I do not remember to have seen it in the west of the county, as at Lymington, Christchurch, or in any part of the New Forest; nor have I any station to record for the northern or eastern quarters, although doubtless it occurs here and there in all parts of Hants. Var. *β. citrina.* Flowers of a uniform pale yellow. Of this most remarkable variety I met with a few plants in a wood near Yarmouth, in July, 1837, since which time I have never fallen in with it there or elsewhere. I long sup-

posed my specimens to be unique, but the same variety has been found in Dorsetshire by Mr. Joseph Woods the year before last, and in greater plenty (Phytol. iii. 264). In my specimens the flowers were of a uniform lemon yellow, verging upon white on the segments of the perianth, without the least of the usual purple colouring, or any trace of the dark pencilling, except a few faint veins of a somewhat deeper colour than the ground. The still unopened buds were equally pale, but the plant possessed the smell and other characters of the species unaltered. This singular variety much resembled the yellow-flowered one of *I. spuria*, *δ. halophila* of Curtis, Bot. Mag. vol. xlviii. t. 1131. *I. fœtidissima* is a handsome species, less on account of the elegantly pencilled but rather small blossoms, than through the contrast of its rich evergreen leaves, of the deepest verdure, with the brilliant orange or scarlet, globose seeds, that remain very long attached to the widely spreading valves of the capsule, and together constitute a conspicuous ornament of our woods and hedgerows in autumn and early winter. The smell of the bruised leaves has been thought to resemble that of roast beef, and the plant has been complimented accordingly with the name of that national dish; by others the odour has been compared to rancid bacon,—dissimilar ones certainly, and indicative of the ambiguity of impressions received through the weakest and most deceptive of the senses: the fact is, that both are so far analogous as they are animal nidor. To myself the smell is by no means unpleasant, recalling merely that of milk heated till a pellicle has formed on the surface, or has been slightly burnt.

Crocus vernus and *C. nudiflorus* may possibly be found here, as well as in the meadows of central England: I believe from what I have seen of them there, that both are truly indigenous British species.

?†*Narcissus biflorus*. In woods, thickets, meadows and pastures, on hedge-banks and in orchards, on clayey, sandy or chalky soil, in several parts of the Isle of Wight and mainland Hants, but whether indigenous or naturalized I am almost equally at a loss what opinion to form; certainly introduced in some at least of its stations. On clay in a meadow near Hardingshoot farm, in some plenty, along with *N. Pseudo-narcissus* and *Tulipa sylvestris*; fully in flower, May 2, 1849. In fields on the west side of Gurnet Bay, near Cowes, in several places, but particularly about Hornhill Copse, where it grows in very considerable plenty on the grassy banks and borders of the fields, as also in the wood itself; in full flower, April 21, 1846. In several fields betwixt Wootton bridge and the church, but very spar-

ringly scattered, 1842. A single very large tuft in a marsh meadow behind Gurnet Bay, 1843. A solitary plant in a sandy arable field by Marvel Copse, near Newport, 1845. A specimen or two found in Marina Wood at Apley, by Ryde; the late A. T. S. Dodd, Esq.!! In a little copse near Place farm, W. Cowes, May, 1846; Miss G. E. Kilderbee. Field by Debborne farm, W. Cowes, in some plenty; *Ead.*!!!—(a suspicious station). Gurnet Wood, *Ead.*! In a field near Wilmingham, scarcely wild; Rev. James Penfold. On a hedge-bank near Thorley, far from any garden, but in very moderate quantity; *Id.*!!! I understand from Miss Clarke, of Yarmouth, that it grows very abundantly in a small field by the Yar, at the north-east angle of Thorley Copse, opposite Yarmouth Mill, as well as in the copse itself, 1846. Sparingly naturalized in a meadow nearly facing the stables at Steephill, Dr. G. A. Martin!!! On a sandy bank betwixt Rookley and Pidford, Mrs. Jones. In orchards near West Meon, Mr. Wm. Pamplin. In several meadows about Hensting and Owslebury, apparently wild (Mr. Earwaker); *Id.* in New. Bot. Guide.

How far the present species is indigenous to England it is very hard to say. It certainly occurs with us in places where it would be difficult to account for its introduction, and where it has perfectly the appearance of a native plant. The chief objections to receiving it as such are, its usually small quantity in any one station, frequently only two or three, or even a solitary tuft; and secondly, its not producing capsules, at least I have never seen them in any of the localities above recorded. The non-production of seed-vessels may, however, be habitual with this, as with many other plants of its order (Amaryllidaceæ), and even the following species, although an indubitable native, fails to produce capsules wholly or partially in many of its localities, whilst in others nearly every individual ripens seed. *N. biflorus* is evidently propagated by bulbs, as is seen by the clusters of them of all sizes on digging up the tufts of leaves and flowering stems, whilst the common wild daffodil is but sparingly increased in this way, and hence the plants grow singly or but few together, forming but small clumps or none at all. *Allium vineale* abounds in certain pastures in this island, and its nativity cannot be questioned, yet in no one instance have I been able to find a flowering specimen amongst the thousands bearing heads of bulbs alone. *Tulipa sylvestris*, which I hold to be a true native in many parts of England, rarely flowers even, and still seldomer seeds, if indeed it ever does; and I believe *Fritillaria Meleagris*, although a free flowerer, never, or very rarely, ripens seed in its native meadows. The same happens with

Ornithogalum and various other bulbs, and hence the objection is more apparent than real. The Primrose peerless is a common inhabitant of gardens, and unquestionably often escapes, or is carried out from them with manure or refuse into the fields, where, as might be expected in an indigenous species, it obstinately maintains its ground, but this will not account so well for its appearance in woods and places remote from cultivation, for like the following this is a sylvestral as well as a pratal and septal plant. We may indeed suppose the bulbs to have been *somehow* carried into such sequestered spots, or we may assume such spots to have been the sites of gardens in by-gone times, but in reasoning after this fashion we may refine away the claims of any species we please to consider an alien; such loose and illogical argument has done infinite harm already, being eagerly employed or acquiesced in by indolent or careless minds, that shrink from the labour of collecting and weighing evidence. But whilst we urge every fact that can in fairness be brought forward in support of the right of this or any other plant to be considered indigenous, we are bound honestly to state anything that makes against our advocacy. *N. biflorus* possesses nothing approaching to the power of occupancy in this county displayed by the wild daffodil, neither have I ever seen it like that in our remote woodlands, but only in thickets or copses in the more enclosed or champaign districts, and there, as before observed, for the most part sparingly, never carpeting the ground like the other. These differences may indeed be innate and habitual to the species; still it cannot be denied that they form grounds for objecting, not unreasonably, to the reception of the two-flowered *Narcissus* into the list of our undisputed natives. I think, however, that Mr. Watson has not done well in branding it as an alien in his valuable 'Cybele,' and omitting the comital census, for if not an aboriginal few plants are more thoroughly naturalized than the Primrose peerless, and the rank of *denizen* should at least, I apprehend, have been assigned it as nothing more than its due. Gerarde (em. p. 131) observes, "The common white* daffodil (his Primrose Pearles, No. 7, fig. p. 124) groweth wilde in fields and sides of woods in the west parts of England," as we know it does at present. It is said to abound in meadows around Dublin, and I remember to

* White is printed wilde in the text, evidently by mistake, since the figure referred to is our *N. biflorus*, and is there headed as above, besides which Gerarde alludes to our other native species, *N. Pseudo-narcissus*, further on, as the common yellow daffodil (p. 133, fig. 2), and says (p. 134) it "groweth almost euerie where through England."

have observed the peasant children in Italy, when on my way from Rome to Florence, with large bouquets of this species, as ours might be seen with similar ones of *N. Pseudo-narcissus*. The smell of the Primrose peerless is very powerful, reminding one of the fragrant *Magnolia glauca* or *grandiflora*. The elegant *Narcissus* of the poets (*N. poeticus*) is partially naturalized on grassy slopes in the grounds of Norris Castle, by Cowes, but has been too evidently introduced there to find a place in the Hampshire Flora. It is very questionable whether this species be really native in any part of England; its most truly natural stations are subalpine meadows and pastures in Italy and Switzerland, &c.

Narcissus Pseudo-narcissus. In moist woods, groves, thickets, copses, meadows, pastures, orchards, and on grassy banks; truly indigenous in many parts of the Isle of Wight, and on the mainland. Plentiful in Quarr Copse, especially at the end nearest the abbey and in the area of the abbey walls. Sparingly in Apley (Marina) Wood, and wood along the shore betwixt Ryde and Binstead. With *N. biflorus* in a field near Hardingshoot farm. Abundant in Firestone Copse and Chillingwood Copse. In considerable plenty in one part of Puckett's Copse, between Quarr and Ninham. On this station many of the flowers were concolorous, or having the segments of the perianth coloured like the crown or cup. In very great profusion underneath the rookery at Nunwell Field, by Guildford farm, near Havre-street; also in a field by Ninham, and another by Coppid Hall. The above stations are all near Ryde, and mostly on stiff clay. Wood near St. Helen's, and covers acres of ground in Centurion's Copse, near Bembridge, which is perfectly carpeted with daffodils in spring. Covers the grassy slope of the mount on which Gadshill church stands on the north and east sides as with a sheet of gold. On bushy banks and slopes at Ventnor, behind the Ventnor Hotel, but not seen of late years. In Gurnard or Gurnet Copse, near Cowes, sparingly. Abundant in a little copse near Woodhouse Farm, Fernhill. Very fine, and in vast profusion* all over a wood chiefly of beech, known as Bottom Wood, occupying a valley between two slopes close to Sandford, near Godshill, on the south side of the village, and in a large pasture-field adjoining; also in several fields about Winson Farm. Hedge-banks and borders of fields along

* Many of the plants here are concolorous or of an uniform golden yellow; the greater part, however, retain the whitish hue of the perianth. This is the *N. Pseudo-narcissus*, β . of Bertoloni, Fl. Ital. iv. p. 18 et 19, or possibly our var. γ .

the road at Sandford and at Appuldurcombe. Plentiful between the second and third milestone out of Newport to Godshill, and at Chilterton, Mr. G. Kirkpatrick!!! Near Swainston, Rev. W. Darwin Fox. Near Freshwater, Rev. James Penfold. Occasionally in other parts of the island. I have few localities to give for this plant on mainland Hants, because my correspondents have not furnished me with them, and the species flowers much earlier than I am in the habit of being in that part of the county myself; * I am certain, nevertheless, that it is quite frequent in Hants, perhaps as common over the water as it is here. I have seen it in fields near Southampton, and at Pilley, near Boldre, and found what I have no doubt were the leaves in a meadow at Nately, near Basingstoke, in May last, but the leaves die down so quickly after the flowers that the plant escapes detection by summer herborizers.† Meadows at Highclere and East Woodhay, J. B. in Cat. of Pls. of Newbury. With varieties (what varieties?) between Bishop's Waltham and Botley, left side of the road, within a hedge near a farm-house, Rev. E. M. Sladen (perhaps an escape from gardens only). Plentiful by the river-side near Christchurch, Pulteney. Var. β . flowers double or semi-double. N. Pseudonarcissus. δ . Bertol. Fl. Ital. iv. p. 18. Here and there occasionally with the common single state, but very rarely, and seldom more than a specimen or two in the same station. A solitary clump in Centurion's Copse, amongst thousands of the single sort, and a very double, but certainly wild specimen on a bank near Yaverland, a few years since. More frequent in meadows and pastures near habitations, escaped from gardens, and then usually of larger size. Field near Bembridge Farm, in some abundance. Field at Woodvale, W. Cowes, and elsewhere, naturalized. In this wild double variety the perianth segments are always of a full yellow, like the cup or crown, and in this state I cannot distinguish it from the common great yellow daffodil of the gardens, although that is supposed to be a different species, the N. major of the 'Botanical Magazine,' and a native of Spain. The leaves of the garden daffodil are greener or less glaucous in gene-

* In the extraordinary mild season of 1846, the wild daffodil was in full flower near Ryde soon after the middle of February, nearly a month before its accustomed time in this part of England.

† Clusius informs us that in his time N. Pseudo-narcissus "grew in such abundance in the meadows close to London, that in that celebrated village (as he calls it) of Ceapside (Cheapside) the countrywomen offered the flowers in profusion for sale in March, when all the taverns might be seen decked out with those blossoms." Rar. Plant. Hist. p. 164.

ral than those of the wild kind, but I think I have remarked considerable difference in this respect between individuals of the latter, and the character is one too slight to lay much stress upon, being probably dependent on circumstances of soil or culture. Var. γ . minor. concolorous, segments of the perianth nearly flat, but little spreading; plant smaller. N. Pseudo-narcissus, Brot. Fl. Lusit. i. p. 549, or N. Pseudo-narcissus, β . Bertol. Fl. Ital. (ut infra)? Plentifully on the high, steep and bushy bank behind Apse Farm, overlooking the garden, in which it also grows plentifully, though appearing rather to have descended to the grass plats beneath, than to have escaped from the garden in which it has not become double. Differs from the common state of the plant in having the perianth segments of almost as deep a yellow as the cup, much less spreading, nearly plane and scarcely at all twisted, narrower, firmer or less membranaceous in texture, rounded or somewhat obtuse, with a minute but very distinct apiculus. The whole plant, although variable in size, is much smaller than the common form, which last is, I have little doubt, the N. bicolor of Brotero, whilst our present variety is the N. Pseudo-narcissus of the same author, and, as the late Professor Don (to whom I showed it) thought, of Linneus also. It almost seems to connect our ordinary wild form with the N. minor of the gardens, but that is a very distinct and well-marked species, which is certainly not the case with the variety we are now considering.

The single wild daffodil, sharing the distrust so absurdly evinced towards almost all our handsomer native flowers, has been supposed of exotic origin, and to have been introduced by the monks in early times, from being so often found near the ruins of monasteries; but it is unquestionably indigenous to the south and middle of England, and to most parts of Europe between the Mediterranean and the Baltic, as far north as 54° , but scarcely higher, being wanting all over Scandinavia and (except in a few suspicious places) in Denmark proper. Here, it occurs profusely in the most sequestered localities, although in earlier ages, when our gardens could boast of but little variety, the more showy productions of our fields and groves would naturally attract attention from the horticulturist, and escaping from his care, be subsequently found established as often in the vicinity of his operations as in their more natural localities. The approaches to Ryde may be seen in early spring bestrewn with the simple yet elegant blossoms of the daffodil, dropped by chance or flung by caprice from the hand of childhood, just as I have seen the streets of Nottingham at the same season sprinkled with the lovely spoils of

the spring crocus, waifs from the emurpled meads below. From their flowering about that time, daffodils are called in Hants and other parts of the country Lenten lilies, corrupted in some places into Lantern lilies. Daffodil, or, as Turner writes it, Affodill, is plainly a mere corruption of Asphodel, Asphodelus, Ασφodelος, a word applied to many plants belonging to this and allied natural orders, the Coronariæ of Linneus. The flowers of our common wild daffodil are reported to be poisonous; the bulbs, as in most of the plants of the order, are acrimonious, and it is said emetic.

The beautiful summer Snowflake (*Leucojum æstivum*) will very probably be found to inhabit this county. It grows in the adjacent ones of Berks and Dorset; in the former near Reading, and in the latter near Kingston Hall, as I have been informed by its finder, J. C. Dale, Esq. It should be looked for in moist meadows, by streams, &c. I found this species in universal cultivation in the gardens of Charleston (U. S.) as the snowdrop, and had some trouble to persuade the people there that it was not the true plant so called in Europe, which cannot endure even the winter of that sultry climate.

†*Galanthus nivalis*. In meadows and pastures, on banks, amongst brushwood, in groves, thickets, and hedges in close lanes, also (naturalized) in orchards and on grass-plats, &c. In several parts of the Isle of Wight, but scarcely in any where it is quite above suspicion of having escaped from cultivation. In great profusion on the steep wooded banks of Snowdrop Lane, immediately west of Gatcombe Park, between that and Ganson's or Gaskin's Barn; and in almost equal abundance at Gillman's, near Champion's; Mr. G. Kirkpatrick!!! In a little wood by the Yar, near Thorley, and its east bank below Freshwater Mill, in plenty; Rev. James Penfold!!! At King's Quay, *Id.* Banks by the road-side before coming to Chale from Blackgang, in great abundance; Dr. A. G. Martin. Field near Shorwell, Mr. Mark Taylor. I am told it grows in several places about Chillerton, and in various spots adjoining to Gatcombe Park. Naturalized under trees beneath the rookery at Nunwell; Mr. J. Lawrence!!! At the grove by Adgeton, near Brading (naturalized); the late Lady Brenton!! I find few memoranda amongst my notes of any station for the snowdrop on mainland Hants, yet I can scarcely doubt of its growing, either indigenous or naturalized, in many places therein. From its early flowering and quick disappearance afterwards, its haunts are in general known only to the resident, and not to the passing botanist, which in a great degree accounts for my ignorance of its distribution out of the island. Not uncommon ap-

parently about Twyford, near Winchester, but only seen by me there in suspicious places, as in the grove opposite Twyford House, and at Twyford Lodge, also in plenty all along a hedge adjoining the churchyard at Compton. Frequent about Hambledon, Miss L. Minchin. The snowdrop may be truly indigenous in some of its Isle-of-Wight stations, as that of Snowdrop Lane has greatly the aspect of a native locality; nevertheless, I am inclined to hold it rather as an introduced but perfectly naturalized species here, because I have never seen it in sequestered woods like the wild daffodil, or on old virgin turf or pasture land, as in many parts of England, where I believe it to be a genuine aboriginal. The parallels of southern and a great part of central Europe are the true zone of *Galanthus*,* or from 35° to about 55° of latitude, and therefore I do not see any excuse for those who refuse to admit its aboriginality on the score merely of its being a common garden plant, and often an escape from cultivation, as it would the more naturally and frequently be on that very account. In this island the snowdrop forms but does not mature capsules and seeds, at least I have never been able to procure them in a ripe condition: the rapid increase of the plant by bulbs quite accounts for this. The flowers have a faint but delicate fragrance not commonly noticed.

Asparagus officinalis. On sandy sea-shores; rare. On loose sand of the Spit at Norton, Freshwater, not in very great abundance, but much more plentiful now than it was some years back, when there were hardly a dozen plants to be seen. It must, however, have existed there for a great length of time, if it is the same station intended

* It will be necessary for me here to explain what I understand by southern, central and northern Europe, since these divisions have been used in so loose and arbitrary a manner, that Britain is by some held to form part of the second, by others of the third division. The most obvious and natural partition will be to divide the entire latitudinal extent of Europe comprising 36 degrees (including Candia on the south), by 3, which gives us as many regions of 12 degrees each in breadth, which may be thus defined:—

Southern Europe 35° to 47°

Central Europe 47° to 59°

Northern Europe 59° to $71^{\circ} 10'$ N. Cape;

the medial line of the whole continent passing through lat. $53^{\circ} 5'$, or a little to the south of Dublin and Liverpool, which, if we adopt with some but two divisions into north and south Europe, will be the exact parallel of demarcation between the boreal and austral regions of our quarter of the globe, each comprising $18^{\circ} 5'$ of latitude.

by the authors of the Catalogue of Plants in the 'Hampshire Repository' (erroneously attributed to Pulteney) given below. It was subsequently noticed there by Mr. D. Snooke!!! A single plant on the shore at the mouth of the Wooton River, June, 1842. A few plants on the shore west of the houses at Ryde, Mr. W. Wilson Saunders!!! (Probably a garden outcast). At Christchurch and Freshwater, Isle of Wight, Rev. Messrs. Garnier and Poulter, in 'Hampshire Repository.' I remember to have once picked a specimen on the muddy shore near Southampton. Flowers often imperfect, the styles obsolete.

Convallaria Polygonatum. In woods and copses; a doubtful inhabitant of this county. Chawton Park, near Alton, Mr. J. Woods, Jun., in Bot. Guide. In May, 1848, I carefully searched the woods at Chawton for a whole day, but could not meet with this rare species. On applying last year to Mr. Woods for further particulars and directions to the spot, that gentleman stated that he had an indistinct recollection of gathering this species near Chawton, but that at this distance of time he could neither recall the locality to mind, or speak confidently with regard to the plant itself. Woods at Rotherfield Park, Miss Scott. Since, however, this *Convallaria* grows, it is said, in coppices about Alderbury, in the contiguous county of Wilts, (and is found in Kent, Somerset, and other southern counties), there seems no reason why it should not be equally indigenous to Hants. I remarked, whilst looking for the plant about Chawton, that small specimens of *C. multiflora* sometimes put on the aspect of *C. Polygonatum*, the leaves in such examples being broader and more erect (or parallel to the stem) than is usual in the former, where the leaves are commonly reflected in pairs from the stems, and stand conjoined like wings at a considerable angle to it, uncovering the latter throughout. May not this resemblance, which I found very tantalizing, often occasion *C. Polygonatum* to be passed by for the above form, or rather state, of *C. multiflora*, which is far from uncommon? I suspect this last may be the *Polygonatum humile Anglicum* of Ray's Synopsis, found by Mr. Philip Moore, gardener of Gray's Inn, in the woods of Wiltshire, according to Bobart, and by the same person in those of Hampshire, according to Morison (Hist. Plant. iii. p. 537), who says, on a view of specimens received by him from Hants, that it differs from the common Solomon's seal only in its smaller size and stature.

Convallaria multiflora. In woods, copses, groves, thickets, and shady pastures, both on the dry, chalky uplands, and in low, damp

clayey or even wet situations; extremely common over a great part of the county, but with our other British species wholly absent from the Isle of Wight. In West Wood (or Weston Wood?), by Netley Abbey, at Mansbridge and elsewhere about Southampton. Common in woods at Langrish, Bordean Hill, Privet, Tigwell and elsewhere near Petersfield, also in woods about Bishop's Waltham, Alresford, Botley, Fareham, Shidfield, Boarhunt, Alton (Akender Wood and Chawton Park), Winton (at Twyford, Chilcombe, &c.), Pen Wood, Highclere, and Appleshaw. Woods about Bramdean, Withering. Under the walls of Silchester, Mr. Fordon in B. G. Woods by Bramdean, Doody. Generally dispersed, I believe, over the whole of Hants, with the apparent exception of the south-western or New-Forest district, in which I do not remember ever to have noticed it. Gigantic specimens occur here and there in our woods, three feet high, with stems as thick as swan-quills, and leaves and flowers in proportion.

Convallaria majalis. In woods, thickets and moist shady places; not found in the Isle of Wight, and far from common in mainland Hants, although I have good reason to believe that very few of its stations only are known to me. In a large hollow in Churcher's Island, near Wickham, and at Shidfield, Miss Chapman !!! Near Shidfield Common, in a copse east of the parsonage at the upper end nearest the road to Droxford, Miss Hawkins. I suspect this station and the last are the same. Abundant in Parnell or Parnholt Wood, near Farley, Miss A. M. Yonge !!! Dr. A. D. White finds it in more than one spot in this wood, where the flowers have stains of dull red or crimson at the bottom, as noticed by Mr. R. W. Smith, of Winton. Wherwell Wood, near Andover, Mr. Wm. Whale. Lord's Wood, between Southton and Romsey, in plenty, Miss L. Minchin. Pen wood (Highclere Park?), Cat. of Pls. of Newbury. Stony places on the common under Cæsar's Camp, 1844, Mr. W. W. Reeves (in litt.). I am told it grows in a wood near Holywell House, in the vicinity of the first station, called in consequence the Lily Wood, but I am not sure whether this and the two other localities of Wickham and Shidfield are not all one and the same: there is some confusion between them. At Shidfield, about a mile from Wickham, the lily of the valley is abundantly scattered over the copse in a damp sandy loam, but of very small growth, and hardly above one plant in fifty producing flowers. In Parnholt Wood, where it grows chiefly under beeches in dark friable soil, I found it still more shy of flowering, not one in a hundred producing blossom, but Dr. White finds it in abundant

flower in other parts of that most extensive wood !!! Many other stations I have no doubt exist in the county, where,

“ Wrapt in verdure, fragrant lilies blow,—
Lilies that love the vale and hide their bells of snow.”

Ruscus aculeatus. In woods, thickets, copses, in bushy, heathy pastures, on hedge-banks and borders of fields; frequent. Very common in many parts of the Isle of Wight; plentiful about Ryde in various places, in Quarr Copse, Apley Wood, Shore Copse, woods along the Wootton River, &c. Very large and abundant in Gurnard Wood, by W. Cowes. Extremely plentiful in dry copses about Newchurch, as at Skinner's Hill, Hill Copse, Alverstton Lynch, Bordwood, &c. Woods in the Undercliff occasionally, but not very common there, and much more frequent in East than in West Medina, preferring apparently the clay of the eocene or tertiary beds to either the chalk or greensand. Common in some parts of mainland Hants, and I think of universal distribution over the county. Portsea Island, and very common in hedges in Hayling Island. About Clayhall and Alverstoke, near Grange farm, and elsewhere in Stoke's Bay. About Southampton, not uncommon. Sowley and elsewhere in the New Forest; probably abundant in that district. In Anfield Wood (near Winton), near one of the principal drives, Mr. Wm. Whale. Amongst furze near Hasted, by Hursley, and on the Otterbourne road (from Hursley?), nearly opposite the corner where is the waterfall at the end of Mr. Chamberlayne's park, *Id.* Hurne (near Christchurch), Mr. Curtis in litt. and Brit Entom. xi. t. 489. The Salterns; Puxollane; Gosport road; Hill Copse, Mr. W. L. Notcutt. Of this plant we have two principal varieties, but connected by intermediate gradations. Var. α . Leaves (or rather phyllodia), narrow, subelliptic-lanceolate. Var. β . Leaves broadly ovato-elliptical. Both these forms are about equally common, and are analogous to similar ones of the common myrtle. I suppose the var. *laxus* of Smith in Linn. Trans. and Engl. Fl. to be some slight deviation from the common narrow-leaved form, α ., with less erect branches than usual, but I find nothing in the station assigned for it (Stoke's Bay) at all differing from the species in its ordinary phases. The flowers of this species are in reality axillary, on peduncles several times their own length, running beneath the epidermis of the flattened branchlet or phyllodium, and appearing as if sessile on the disk of the latter, at or about its centre. Analogy with other species of the genus leads us to regard this subcuticular peduncle as the common stalk of a raceme, of which only

one, or at most a pair, of flowers are developed at a time at its free extremity, the rest expanding as they are successively protruded, as is obvious from their production for a long time together from the same point, as well as from the remains of the pedicels and bracts, not to mention the nascent buds amongst which the later flowers are seated. The flowers are often produced as early as January if the weather be tolerably mild, and the large, cherry-like, bright scarlet and polished berries remain attached through the winter, making a fine appearance in the woods, but readily drop off when handled. Butchers are said to make use of it in some parts of England for driving away, and perhaps impaling on its excessively acute spines, the flies that settle on their meat and chopping-blocks. The more gentle of the craft with us are contented to deck their mighty Christmas sirloins with the berry-bearing sprigs, and it contributes at that season, with holly, misseltoe and other evergreens, to the decoration of our churches and houses. Its common name in this island is Knee Holm. The stems, though so hard and stiff, scarcely, I think, survive beyond the second or third year. The common Butcher's-broom is unable to resist a degree of cold much beyond that of our English winters, and therefore, like *Tamus*, its line of distribution is deflected towards the south-east upon the continent, where it is rather a plant of southern than central Europe.

†*Tulipa sylvestris*. In clayey or chalky meadows and pastures; very rare, and perhaps not really indigenous, at least to the only Isle-of-Wight station I know for it at present. In a large moist meadow on clay a little south-east of Hardingshoot farm, a few miles from Ryde, Feb. 25, 1846, just coming into flower. The plant here is in very moderate quantity, although apparently quite wild, occurring sparingly scattered over a rather limited area, associated with the single wild daffodil (*Narcissus Pseudo-narcissus*) and tolerable plenty of the Primrose peerless (*N. biflorus*). The meadow is on the (plastic?) clay, but contiguous to the chalk formation at Nunwell, and hence the soil probably contains calcareous earth as a constituent in small proportion. One or two only of the plants flower, I believe, annually. Mr. Wm. Whale showed me at Andover a specimen of the wild tulip, which he had received from a lady who gathered it in the Isle of Wight, but no station was given on the label. It probably lurks undetected in some of our chalky pastures, pits and hollows, from the difficulty of seeing it excepting at a very early season of the year, before the leaves have died away, or the rather uncommon flowers are past. Plentifully in an orchard at Breamore (near Fording-

bridge), Mr. J. Hussey (naturalized probably). This is the only mainland station I have on record, but others less exceptionable will in course of time be discovered. I see no reason to doubt that the wild tulip is indigenous to Britain; in some parts of England it abounds in chalky pastures, and is the species appropriated to western Europe, just as *T. biflora*, *altaica*, &c. are to eastern Europe and Siberia, under our parallels. The sole cause for suspecting the Isle-of-Wight station is the fact of the meadow in which it grows being close to the site of a small farm-house, now many years destroyed, called Little Hardingshoot, but I have no evidence of the spot in which the tulip is found, or any other part of the field, having ever been garden-ground, nor is there the smallest trace of a garden visible at this day. I nevertheless consider it incumbent on me to state, in cases like the present, the remotest suspicion that may arise on the question of the spontaneity of any plant enumerated in our county flora: the ends of science can only be promoted by the unreserved communication of every doubt, however slight, and by holding with strict impartiality the balance of argument in which are weighed the claims of species to be called indigenous, not failing to declare when the beam inclines ever so little against us.

Fries tells us that the wild tulip so abounds in innumerable places in the Swedish province of Scania, as in early spring to cover the ground as if thickly sown with corn (*segetis instar stipata*), but rarely flowering and quickly withering away. He thinks geographical reasons opposed to its being truly aboriginal in that part of Europe (lat. $55\frac{1}{2}$), but that objection does not apply to the south and middle of England, which is quite within the proper zone of *Tulipa sylvestris*, whatever may be the case with Scania. Fries observes that the plant was well known to Linneus a century ago, who, according to him, was disposed to hold it native there (*haud advenam declaravit*), *Corpus Fl. Provin. Suec. Scan.* p. 170. But Linneus appears to me to have held rather the contrary opinion, for he says (*Fl. Suec. edit.* 2, 106) "*ex horticis non pridem aufuga*," an ambiguous wording, since *pridem* means both lately and long ago, but in both senses the escape from gardens is directly asserted by him.

Fritillaria Meleagris. In damp meadows, pastures, woods and thickets; rare. Not found hitherto in the Isle of Wight. Sparingly in a moist meadow belonging to and opposite the residence of J. K. Jonas, Esq., about half a mile out of Bishop's Waltham, on the road to Gosport, Miss L. Minchin !!! Very sparingly in Tangier Park, near Basingstoke, Miss Orde, 1848. In all the woods round Strath-

fieldsaye (the Duke of Wellington's), on the northern limit of the county, but in more abundance in the park, Miss E. Sibley !!! Here the Fritillary grows by tens of thousands in the wet pasture and meadow land, scattered over a vast acreage of the park, but most abundantly towards the north-west end, and in the wet meadows beyond it, on the other side of the road (I believe in Berks, or in an outlying portion of Wilts). The varieties with purple and white flowers occur in pretty nearly equal proportion, and in a swampy thicket at the north end of the park I gathered most luxuriant specimens eighteen or twenty inches high. It has been long known to grow near Reading, in the conterminous county of Berks and only a few miles from Strathfieldsaye, and two other stations are given for it in that county in the 'Catalogue of Newbury Plants' several times referred to in these Notes. I have not ascertained that the species grows in all the woods about Strathfieldsaye, and believe my friend speaks from the report of others, but it certainly does grow in wet thickets there, and from what is recorded of a station further on it would seem to be a sylvestral as well as a pratal plant in Hants. At Bishop's Waltham, Mr. Jonas tells me, the children gather the Fritillary for their May-day garlands, yet, in proof of the incurious nature of the Hampshire peasantry, I could not find any one at Strathfieldsaye who knew its name; some called the plants snowdrops (the white variety), others daffodils, whilst the rest pronounced them to be cowslips! The station at Droxford given in this journal (Phytol. ii. 998) I understand since to be erroneous, or at least doubtful. "Said to grow in Marvel Wood (near Winton?), but I have searched more than once for it without success," Dr. A. D. White (in litt.). So elegant a plant as the Fritillary, and one of so unusual an aspect and comparative rarity, could not of course escape suspicion of being an imported foreigner with that rather numerous class of persons who appear to think Cowper's "fields without a flower"* no poetic amplification of the comparative deficiency of our British soil in the choicer productions of the more favoured climates of France and Spain. But here, as in other instances, their incredulity is founded on misapprehension of the true nature and geographical range of the species. Beauty of form and colour are so inseparably connected in our minds with warmth of climate, because we see both developed in the highest degree where the influence of such climatic condition is greatest, that we are apt to assume the latter to be in all cases indis-

* Task ; the Time-piece.

pensable to the production of the former, and to conclude that every plant, endowed with those attributes of gracefulness of form or richness and variety of hues above its fellows in the field, must have migrated from a climate in which alone we fancy plants so attractive could have originated spontaneously. We may excuse the non-botanical world for making that absolute and unexceptional which as a general proposition holds true in the main, and only smile at their crude speculations and traditions to account for the presence of certain southern types of vegetation which mingle in our flora with the predominant and more northern forms;* but it does seem surprising to find botanists who have the means of comparing the vegetation of our own with that of adjacent countries continue to suspect or reject, because their forefathers suspected or rejected, plants evidently proper to our zone and climate. Many tropical genera, as *Passiflora*, *Dioscorea*, and even tropical families, as palms, have one or more outlying species that extend far into the temperate zone, and the same holds good with plants having their chief seat in the south of Europe, species of which extend into central or even northern Europe; such are *Narcissus*, *Muscari*, *Gladiolus*, *Iris*, *Daphne* and many more, all of which have representatives in the middle parallels of our continent, and why not equally in Britain? I do not mean to say that every such outlying or northern species when found in Britain must forthwith be set down as indigenous, because its natural limits in other European countries are under a latitude as high as our own, for it is well known that plants have their distribution governed almost as much by longitude as by latitude; but this I do mean to assert, that when a species is discovered in reasonable abundance in this country which is known to inhabit a nearly or equally high latitude on the continent, and occurs here in situations perfectly analogous with those it affects abroad, unless some good cause can be shown why it is not likely to be indigenous, such as the vicinity of gardens, or proof of recent importation, &c., it does strike me as an absurd and needless refinement in scepticism to refuse such species the full

* Many plants common in the south and west of England, such as *Erica ciliaris*, *Agrostis setacea*, *Briza minor*, *Rubia peregrina*, *Gastidium lendigerum* and *Tamus communis*, are in fact more truly southern species than most of those which it is the fashion to suspect as aliens, but then they have not the misfortune, like these, to be objects of cultivation for their beauty or other qualities, as in the case of such really more northern plants as the hop, mezezon, Martagon lily, our two hellebores, columbines, &c., which have all some enemy or other amongst British botanist to invalidate or deny their title to citizenship.

acknowledgement of citizenship. I will give what I consider an instance in point. The starch hyacinth (*Muscari racemosum*) is set down by Mr. Watson in the 'Cybele' as an alien, without a query expressed, and with the omission of the usual comital census. Mr. Babington marks it in the 'Manual' as a doubtful, and Sir Wm. Hooker as a certainly introduced, plant. Now why should this be so?—*Muscari racemosum* is found in sandy fields and grassy places throughout southern and central Europe, in the west as well as the east in Belgium, France, Germany, &c., being the most common and northern species of its genus. I gathered it in April, 1835, in profusion over a great extent of sandy ground, and in fallow-fields at Cavenham (pronounced Canham), eight miles north-west of Bury, in Suffolk, between that town and Mildenhall, where it is certainly native and quite a weed in that neighbourhood, and I was told at Pakenham and Hengrave likewise. See also E. Gillingham's 'Account of Bury,' 1804, p. 288. Now upon what principle do those act who doubt or reject this plant as belonging to the British Flora? Upon none that I can imagine, except that it is rare, or rather very local, in this country; that being a frequent object of cultivation as an ornamental flower in British gardens, it is *assumed* to have become naturalized from that source, and lastly, from a vague, unquestioned opinion that it is a species proper to the south of Europe, and therefore not likely or even possible to be indigenous with us. For my own part, I am fully persuaded *Muscari racemosum* is a genuine native of the east of England, and that the very long known station on the earthy ledge of the old city wall of Norwich is a natural one. As to the objected silence of old authors on this and other modern additions to the British Flora, I have before shown (Phytol. iii. 622) how untenable that argument is and irreconcilable with fact, for once admit it, and what becomes of the claim of such undenied and undeniable British plants as *Lobelia urens*, *Erica ciliaris*, *Briza minor*, *Euphorbia hyberna*, *Trichonema Columnæ*, and many besides, that from their local distribution escaped notice in England up to a late or comparatively late period? I have also shown, under *Campanula* (Phytol. iii. 129), how plants of a continental or eastern distribution become scarce or local in westerly and insular countries, or fail there altogether; but that is no reason why they should not, as we see they do, occur partially and sporadically in such regions, or for our refusing to own them for natives when found. Now let us see how the case stands with the more immediate subject of these remarks, the *Fritillaria Meleagris*. This species needs not so much defence against the sceptics as some others,

being pretty generally recognized as a native at the present day by our leading botanists. Still there are dissentients, or those inclined to be so. Mr. Watson, in 'Cybele Britannica,' wavers somewhat yet. No one, I think, who has seen the Fritillary in many of its English habitats could reasonably doubt its nativity, but we will take up our old position and tower of strength in the geographical distribution of the genus. The Fritillaries have their chief seat in the northern temperate zone, either on high mountains towards the south, or in low plains, at or near the sea level, towards their northern limit: they are, in fact, plants of cool and even cold climates. We find under our own parallels, or between fifty and sixty degrees of latitude, species of the genus appropriated to every part of the world. In Europe we possess *F. Meleagris* all over the west, ranging in Norway and Sweden to about lat. 60°, and eastward to the confines of Asia, where, in Siberia, it is replaced by *F. verticillata* and *F. minor* (Ledeb. Fl. Altaica), and at the furthest eastern extremity of that continent in Kamtschatka, and on the opposite western shores and isles of America by *F. Kamtschatcensis* and *F. lanceolata* (Hook. Fl. Bor. Am.). These species, like our own, inhabit the plains and low grounds, and are strictly the analogues of *F. Meleagris* in their respective countries.

†? *Lilium Martagon*. In woods, copses and thickets; very rare. Not known in the Isle of Wight. Discovered about fifty-six years ago by Capt. Charles Robinson, R.N., late of Swanmore Cottage, near Bishop's Waltham, now of Greenwich Hospital, in a wood near Durley. Capt. R. obligingly communicated to me the following particulars in a letter from himself, dated July 26, 1848:—"It is now many years since I discovered the Martagon in some abundance in the large wood on the Durley estate, called Durley Wood, through which a small rivulet passed and ran into the river running (into?) the pond at Bishop's Waltham, opposite or nearly so to Calcot House, then the residence of — Clewer, Esq., of Botley. Many specimens of this plant have since been obtained by others from the same locality; whether there are any at present I really cannot (say), since . . . * it being now full fifty-four years since I first discovered it in the before-mentioned wood." Last summer I searched in Durley Wood for the Martagon lily without success, but time did not then permit of more than an imperfect examination of the wood, which is very considerable in extent and irregular in form: I trust to be able to renew the search for this fine plant, and hope others residing near or visiting Bishop's

* I cannot decypher some few words in Capt. R.'s letter.

Waltham may be induced to assist me in again bringing it to light. Its usual place of growth, amongst thick brushwood, often veils it from the passer-by even when in flower. Whether the Martagon Lily is really indigenous in Durley Wood, or simply naturalized, I cannot pretend to say, but in most parts of that wood, were I to meet with the lily in any quantity, I should judge it a natural locality, disposed, as I am, to contend for its claim to be held a true native of the east and south-east of England. In support of this view, I take the precise line of argument employed in the case of *Daphne Mezereum*, and therefore need not recapitulate all that has been said by me on that and other disputed species. I look on the claims of the *Mezereon* and *Martagon* to be as nearly the same as can be; the sole objection that I have to urge against the admission of both into the list of acknowledged natives, being the failure of each of these plants towards the coast countries of the west of Europe and in the meridians of the British Isles. Otherwise their distribution accords here with their dispersion on the continent, for both inhabit the same parts of central Europe from the western confines of Germany across the entire continent into Siberia. Towards the south, *Lilium Martagon* is an inhabitant, like most of the genus, of subalpine woods, but descends into the plains or to low elevations in the middle parts of Europe and Asia, growing in copses and bushy places precisely as with us. It seems to be absent from Belgium proper and from the north-west of France, but is indicated by Von Hall (*Fl. Belg. Sept.*) as found in the wood of the Hague, and possibly spontaneous there. Fries (*Corp. Fl. Prov. Suec. Scan. p. 169*) gives it as abounding in pratal thickets (*dumetis pratensibus*) at the foot of hills in one or two places in Scania, and remarks that in Germany it is truly indigenous wherever there are primitive mountains, nor will he deny the possibility of its being native to Sweden also. *L. Martagon* is indeed the most common and widely diffused species of the genus in Europe, and if not strictly (as, however, I am inclined to believe) an aboriginal Briton, it is yet so thoroughly naturalized, and its stations are now so numerous, that it is deserving of better treatment than to be put upon the alien list, and, as if a casual stray from the garden merely, deprived of its rank of denizen and privilege of comital representation in the ‘*Cybele Britannica*.’ This species of lily has been in cultivation universally since the year 1596, and in all probability long before that time. Supposing it to be merely naturalized with us, it is highly improbable that it should have become so only at a later day, and hence it must have existed, as at present, in many of our woods without being

observed, for perhaps a couple of centuries or more. Most of the recorded stations are of very recent date, but it is said to be mentioned as found wild in Yorkshire so long back as 1770, or thereabouts, in Hull's 'British Flora,' a work I have not myself seen. In the Turk's-cap Shaw at Woodmanston, about one mile from Banstead and four from Epsom, in Surrey, where I gathered it in profusion, July 5, 1835, and communicated specimens, from which the beautiful figure in E. B. Suppl. iii. t. 2799, was made, no plant could have a more perfectly indigenous aspect; and it appears, I am told, equally so in other parts of that county, and in Kent and Essex. Gmelin (Fl. Sibirica, i. p. 44) says it abounds throughout Siberia to Ochotsk, lat. $59\frac{1}{2}$, and Kamtschatka. This last peninsula, lying under the same parallels as Great Britain, resembles Newfoundland in its climate, and like that island is infinitely colder at all seasons than England, the summers in both being extremely moist, chilly and variable, snow lying at the sea-level in the harbour of St. Peter and St. Paul very commonly till the middle or end of June.*

Obs.—*Simethis bicolor*, very recently discovered on moory ground about two miles west of Bournemouth towards Poole, but within the Dorsetshire boundary, it can hardly be doubted, will be discovered ere long on the Hampshire side of that vast heathy tract called the Poole Basin, which is as remarkably uniform in its botanical as in its geological features. I visited the station, which is very close on the borders of this county, by Mr. Borrer's directions, in October last, and found the dried remains of the leaves, stems and flower-stalks. Its detection still more recently in Ireland fully confirms it as a genuine native of Britain, and leads us to hope that it will ultimately prove indigenous in many parts of the south-west of England. *Anthericum ramosum* and perhaps *A. Liliago* ought, one would suppose, to grow in England. The former especially is widely spread over Europe, and is frequent in the north of France, and in most countries of the continent to Denmark and Sweden.

* The mean heat of the three summer months at St. John's, Newfoundland (lat. $47^{\circ} 34'$), is below that of Edinburgh (lat. $55^{\circ} 57'$), and the other seasons are colder in a still greater degree. I have myself seen ice in huge masses on the shore of the extreme south point of Newfoundland in the middle of July; and the climate of St. Peter and St. Paul, in Kamtschatka, from its higher latitude ($53^{\circ} 10'$) and extreme eastern position (long. E. $159^{\circ} 30'$) is still worse than in Newfoundland; for although far less rigorous than that of Siberia in winter, it is miserably deficient in positive warmth at all times of the year, like southern Patagonia. Yet does Kamtschatka produce many very fine plants of the natural orders we are now treating of, in *Lilium*,

+? *Ornithogalum umbellatum*. In meadows, pastures and thickets; rare, but I see no great reason to doubt its being truly indigenous in Hampshire, although unquestionably most frequently seen as a garden outcast, or at least in spots open to suspicion. Meadows about Steeplehill in several places, appearing to be truly wild, Mr. Albert Hamborough and Dr. G. A. Martin !!! A few plants found, June 13, 1845, in Calbourne New Barn, Hummets, apparently quite wild. In a pasture by Afton House, Mr. G. Kirkpatrick (indigenous?) !! Naturalized on the lawn behind Osborne House, and in all the subjoined stations in a very questionable condition as regards nativity. In Northwood Park, Miss G. E. Kilderbee, but rarely flowering, and too near the shrubbery !!! In an artificial grass field at Newchurch, in tolerable abundance, but on the site, some thirty years ago, of cottage gardens. I have found it in similar unsatisfactory situations elsewhere in the island. "Found at Bullington," Rev. D. Cockerton, the only station I find amongst my notes for this plant on the mainland of the county. Called "Wake-at-noon" in this island. *O. pyrenaicum* probably grows in the woods of this county, since it has been found in the adjacent ones of Sussex, Wilts, Berks (Cat. of Pls. of Newbury), and I think Dorset. In Somersetshire the Miss Sibbels have found *O. pyrenaicum* growing five and six feet high! I have never seen it much exceeding a foot or two in woods at Bath, where, during my residence in that city about sixteen years ago, I have seen the young shoots sold in the market instead of *Asparagus*. *O. nutans* is likely to be naturalized in some parts, and *Gagea lutea* may occur with us as well as in Oxfordshire.

Scilla autumnalis. In dry sandy or gravelly pastures, and on rocks by the sea; very rare. In great plenty on the sandy pasture-ground of the Spit or neck of land below St. Helen's, that stretches across the entrance of Brading Harbour. Priory, Isle of Wight, Mr. J. Woods, Jun., in Bot. Guide (possibly the same station as the last).

Fritillaria, *Ornithogalum*, &c., proving that there is no inseparable connexion, as people are apt to suppose, between beauty of form and colouring, and geniality of climate. We should disregard this too prevalent opinion in discussing the indigenous origin of plants, and be guided by the type they present, and the geographical distribution of the orders, genera and species they severally belong to. A most remarkable instance of the prevalence of richly-coloured and extremely tropical forms of vegetation, under a constantly cool and sunless sky, ever dripping with rain or fog, is graphically given by Dr. Hooker in his account of Sikkim Himalaya, in the 'Journal of Botany' for February, 1850, pp. 58, 59.

In the former place it seems to have been first noticed by Mr. W. D. Snooke, and may be found annually, for the most part in plenty, and in some years even profusely. These are the only Hampshire localities I am at present acquainted with for this rare and pretty little Squill. Leaves seldom produced with the flowers or coetaneous, at least not fully developed till the latter are past, and sometimes not even then.

?*Scilla verna*. On rocks, cliffs, pastures and grassy slopes near the sea, but extremely rare, if it was ever found at all in Hants. "Near Newport, Isle of Wight," Rev. Messrs. Garnier and Poulter in Hamp. Repos. Brading, Dr. Bostock in Withering's Bot. Arrang., 7th edit. The authenticity of the latter quotation was kindly confirmed by Dr. Bostock, in answer to an inquiry made on the subject by Dr. T. Bell Salter, in 1839. Dr. B., I believe, exhibited specimens before the Linnean Society, or at least to some of its members, I forget which; still it is possible that between two species so nearly resembling one another a mistake may have been committed. Were it not that the existence of *Scilla verna* as an Isle-of-Wight plant rests on such respectable authority, I should be inclined to exclude it from the Hampshire Flora, having never succeeded on repeated trials in finding it on either station, or heard of its rediscovery by others. Although common enough on many parts of the western and north-western coasts of Britain, from Cornwall to the Shetland Islands, and on a few spots along the north-eastern shores as far south as Northumberland, there are no recorded localities for it on any intermediate point of the extensive coast line between the two English counties just named, unless the unconfirmed stations in this island, and one or more equally doubtful habitats in Devonshire, be excepted. The wide difference in the flowering seasons of these Squills is the chief difficulty in the way of supposing a mistake to have been made between plants otherwise much alike. It may be well to remark, that I do not find *S. autumnalis* on either station assigned to *S. verna*, which lessens in some degree the suspicion of any such error. I should never be surprized to hear that *Scilla bifolia* had been rediscovered in England, but should expect it rather in the eastern than the western parts.

Allium vineale. In meadows, pastures, waste grassy places, and borders of fields; not, I think, uncommon, but often, I imagine, overlooked, from its seldom or never flowering with us, which may induce some doubt at times, even with respect to the species being the same in all the subjoined stations. At Steephill and other parts of Under-

cliff occasionally, as Pelham Woods, &c. Abundantly in Northwood Park, where, in one place, the turf is quite covered with its leaves, but no flowers are produced. Frequent on the east bank of the Medina, below Newport, near Fairlee House, Mr. G. Kirkpatrick !!! Culver Cliffs, Rev. G. E. Smith !!! (see *A. oleraceum*). I have found it occasionally in other parts of the island, but never in flower, and for this reason I have omitted noting down the localities, feeling uncertain whether some other species might not have been mistaken for it by me. We share, of course, in Hants the general poverty of Britain in the species of *Allium*, which are far more numerous in the south and south-east, than in the western parts of central Europe. On the mainland *A. vineale*, or what I guess to be such, abounds on Magdalen Hill, near Winchester, and it is probably only this, and not *A. Schœnoprasum*, which has been indicated to me as Chives, growing in Hayling Island, by the Rev. Charles Hardy. I do not, however, mean to deny the possibility of that very local plant being a native of our county, but I have, as yet, seen no specimens from Hayling.

Allium oleraceum. In similar places with the last, but scarcely well proved to inhabit this county. The Rev. G. E. Smith believes he found this species on the *débris* of the green sandstone in Sandown Bay. I have two specimens of an *Allium* gathered in this bay in 1839, by a servant, and sent to Miss E. Kirkpatrick, the leaves of which are very narrow, with close cylindrical sheaths, and appear to have been plane when fresh; the head of bulbs is very compact and spherical, but the flowers had quite fallen. The crest of the sandstone cliffs near their junction with the chalk of Whitecliff Bay, is fringed for some distance with quantities of an *Allium* which I suppose to be chiefly *A. vineale*, but invariably producing only heads of bulbs without blossoms; but both here and on the banks of *débris* in the bay below, specimens occur with semi-cylindrical leaves grooved above, but not rough as Smith asserts of *A. oleraceum*; the want of flowers puts it out of my power to decide with certainty to what species it belongs, the species of this genus being very difficult of discrimination by their leaves alone.

Allium ursinum. In moist shady woods, groves, thickets, on damp hedge-banks and grassy borders of fields; rarely with us in open meadows and pastures; far too abundant in many parts of the Isle of Wight, and probably not rare in the county generally. Most common in woods over the chalk or on the greensand. Plentiful in Centurion's Copse, near Brading, and in enormous quantity over nearly the whole of Greatwood Copse, near Shanklin, as well as extremely abundant in

all the other woods betwixt Shanklin and Bonchurch, in Hatchet Close and Cowpit Wood, &c. Excessively rank and profuse in the high enclosed wood in Appuldurcombe Park, and equally so about Gatcombe, under the trees in the wilderness or rookery. About Shorwell, as at North Court, in the dell or hollow in which the mausoleum stands; in patches of copse about Chevértou farm, Idlecombe, &c. Most profusely in Lorden, Barkhams and Bakerswood Copses, betwixt Carisbrook and Shorwell, here, as in many other places, perfectly concealing the ground to the utter exclusion of every other plant excepting the no less gregarious and usurping *Mercurialis*. Common in Swainston woods and about Calborne, abundant in woods at Rowledge, and in fact in every patch of copse and thicket on the southern slope and foot of the central chalk range in Westridge, Slucombe, Dewcombe Copses, &c., much too plentifully. Grounds at Norris Castle, and in Barton Copse, near Osborne, abundantly, as well as in other parts of the island occasionally. Either it is less common on the mainland of Hants, or it has escaped my notice from the disappearance of the leaves early in summer, as I have at present only the few following stations to give: Longwood, Miss L. Legge; Warnford, Rev. E. M. Sladen; Near Soberton Mill, Longwood, Rev. Messrs. Garnier and Poulter in Hamps. Repos.; Fontley; bank near Wickham road, Mr. W. L. Notcutt; in Hawkley Hangers, near Selborne, June, 1850.

This plant is an abominable annoyance in our island woods in spring and early summer, soon after which the leaves and scapes die down, and cease to offend the botanical explorer by the rank odour of garlic they exhale. Some of these woods are so completely filled with it, that in looking along the ground, beneath the trees, one beholds only a uniform mantle of its leaves, which are often more than a foot in length and nearly four inches wide, and so effectually exclude the light from the soil below them, that nothing springs up to relieve the rank monotonous exuberance of the repulsive herbage, the odious scent of which, the profuse array of starry blossoms cannot make amends for. In close damp weather an insufferable garlic smell infects the confined air by direct exhalation from the plant, and which is increased as it is trodden down and broken in passing through the almost knee-high foliage. Its presence in woods, however, is innoxious compared with its intrusion upon pasture land, as is too often the case in other parts of England, to the great detriment of all dairy produce from fields so infested. Fortunately for our farmers and graziers, the Bear's Garlic will only thrive here in damp and per-

fectly shaded situations, and is a sylvestral, scarcely a pratal species. Besides Ramsons, it is here called Gipsy Onion, as forming it is said an article in the strong diets of that singular race, whose picturesque encampments, once numerous in this forest country, are now comparatively few. Nearly allied to our Ramsons is the *A. tricoccum* of N. America, but in that species the leaves die off before the flowers are developed, which is not till June or July. The bulb also appears to be ovoid and acuminate, not as in our plant, elliptic oblong, equally thick at both ends. Both exhale the same detestable smell when drying for the herbarium.

Agrophis nutans (*Hyacinthus non-scriptus*). In groves, thickets, copses and on hedge-banks, as well as in damp open grassy places, meadows, &c., most profusely abundant throughout the county and Isle of Wight. Var. β ., flowers white, occurs here and there occasionally as single specimens, but always very sparingly. In Quarr Copse, St. John's Wood and elsewhere about Ryde, now and then. Not unfrequent in woods about Shanklin. An example or two with pink or flesh-coloured flowers has occurred to me in this island, but is extremely rare. This beautiful and familiar plant, more common in Britain than in any other country of Europe, to the western parts of which it is exclusively confined, goes here by the name of Blue-bottle, doubtless from the ventricose form of the flower contracted and reflexed at summit.

Obs. *Muscari racemosum*, the Starch Hyacinth, may be looked for in the sandy fields and pastures of this country with good probability of success. It is reported in the adjoining counties of Dorset, Surrey and Berks; in the last, near Newbury according to Dr. Lamb, a town close upon the Hampshire boundary, and the station may even be within our own limits. The sandy tracts between Petersfield and Farnham, and about Wolmer Forest, are amongst the most likely to yield this species, which I am persuaded is a genuine native of eastern England, as I have lately endeavoured to show, nor should I be surprised to hear that *M. comosum* or *M. botryoides* had been found wild in this country, being both coextensive in their range with the other on the continent.

Colchicum autumnale. In moist woods and thickets, or in low damp meadows; rare? Found some years back by Mr. Daniel Clarke of Newport, in a field by the Medina above Shide Bridge (close to the town on the south), Mr. G. Kirkpatrick; but subsequent research has not confirmed the discovery of the *Colchicum* in that or any other part of the Isle of Wight. In a small wood at Ap-

pleshaw; Mr. Borrer in Bot. Guide. I find it abundant in the large sloping wood nearly facing the church, in which *Lonicera Caprifolium* has been found, and which produces besides *Aquilegia vulgaris* and *Vicia sylvatica*. The *Colchicum* probably grows not uncommonly in the vicinity of the same village, as it has been found abundantly in a meadow there by the Rev. J. W. Reeves. Near Liphook, Mr. H. Barrett in Baxter's Brit. Flow. Pls. In a meadow near Burghclere parsonage, very plentiful, Cat. of Plants of Newbury. These are the only stations I know of at present in Hants for this equally curious and valuable but dangerously active plant. It doubtless grows in other parts of the county, being found in most of the adjacent ones on the west and north.

Narthecium ossifragum. In spongy, turfy or peaty bogs, wet moory heaths and commons; not frequent in the Isle of Wight. In Sandown Marshes on the skirts of Lake Common. Most profusely in Alverstton Lynch, near Newchurch. Abundant on the Wilderness and moors adjoining. On the boggy slope of Bleak Down towards Roude. Moors by Munsley, near Godshill, and Munsley peat-bed. Bog at Blackpan, Dr. T. Bell Salter. Wood near Tinker's Lane (by W. Cowes), Miss G. E. Kilderbee! Freshwater Beach, Isle of Wight, Rev. Messrs. Garnier and Poulter in Hamps. Repos. (where could this plant have grown *then* where all is now sand and shingle?) Far more frequent and abundant in mainland Hants. Boggy parts of Tichfield Common in plenty. Exceedingly abundant on heaths and bogs about Ringwood, and on boggy moors betwixt Christchurch and Poole, at Bournemouth, &c., in profusion. In the bog near Lyndhurst, in which *Spiranthes æstivalis* grows, and indeed common throughout the New Forest and Christchurch hundreds, on the vast moorland tracts of that boggy and swampy district. Bog at East Woodhay. Beautifully in wet ground below, that is south of Shidfield Church, Miss Hawkins (in litt.). In bogs, frequent, as about Botley, &c., Mr. W. Pamplin (in litt.). A frequent plant, I believe I may say, in every part of the county where moors and bogs prevail. The brick-red of the ripe capsules gradually bleaches by keeping in this and *N. Americanum*, which last seems scarcely distinct from our European Bog Asphodel.

Juncus maritimus. About salt-marsh ditches, on sandy or muddy sea-shores, mouths of tide-rivers and salt-inlets, also on moory pasture grounds along the coast; very common. On ditch-banks along the shore between Springfield and Nettlestone Point. Plentifully by creeks of the Medina above West Cowes, and in salt marshes

at Newtown. Profuse in the salt-marshes along the Yar, betwixt Yarmouth and Freshwater Gate. Thorness Bay, in plenty. Norton and Brading Harbour, in abundance, Mr. W. D. Snooke, (in Fl. Vect.!!!) Abundant in salt-marsh and brackish pastures at Emsworth, and thence westward all along the coast. Plentiful in Hayling Island. About Christchurch Harbour, plentifully. The Salterns, Hill Head, Carm (near Fareham), Mr. W. L. Notcutt; and in innumerable other places. The white bases of the scapes are remarkably clammy, and possess a peculiar fragrance, resembling that of cedar-wood, not I believe noticed by any author.

Obs. *J. acutus* grows in tolerable plenty at Emsworth, close to the Hampshire border, but on the Sussex side of Emsworth Creek, which divides the two counties, where it was discovered by Mr. Borrer some years ago. It is there found in a piece of muddy ground, overflowed at high-water, on the eastern side of the creek or harbour, just below the quay or embankment and the mill, looking, at a distance, from its dark green colour and mode of growth, something like low broom-bushes. The station can only be approached at low-water, and then across ooze and slime. Some precaution is necessary in collecting specimens of this plant, for the barren scapes and leaves are as stiff and sharp as porcupines' quills, and as capable of inflicting severe punctures. It grows mixed with *J. maritimus*, from which it may be distinguished from far by its close heads of large, shining, brown capsules, that are very long in ripening, not probably till the second year, by its deeper green, and the somewhat radiated or spreading growth of the scapes and leaves. I searched carefully on the Hants side of the creek, and all along the shore westward beyond Havant, in hopes of securing this rare species to our Flora, which I cannot very honestly or safely contend for its belonging to at present; for, although Emsworth is in Hampshire, and *Juncus acutus* grows at Emsworth, the concluding proposition of the syllogism, that therefore *Juncus acutus* is a Hampshire plant, would be demurred to as illogical, in point of fact, by its worthy discoverer, accompanied, probably, by an awkward demand on me for restitution of what I had unceremoniously filched from his Flora for the adornment of my own. Dr. Salter finds a single tuft of this species on the shores of Poole Harbour, (the *J. acutus* of Pulteney's Cat. of the Pls. of Dorset. is most likely only *J. maritimus*); it may, therefore, reasonably be expected on some intermediate point of the coast-line between these eastern and western stations.

Juncus effusus. Common in most parts of the Isle of Wight

and the rest of the county, on barren, wet, or moory pastures, heaths, &c.

Juncus conglomeratus. With the last, and the more abundant of the two; in sterile, rushy meadows, by road-sides, &c. The var. β . *effusus* is, I think, not uncommon with us. The much darker coloured capsules appear to ripen considerably earlier than those of *J. effusus*.

Juncus glaucus. Less frequent on the whole than the two preceding species, yet very plentiful on poor, wet, sandy, clayey, or heathy pastures, commons and by road-sides. In various places around Ryde. At Quarr Abbey, Springfield, Green Lane, near Ashey, &c.

Juncus diffusus. In similar places with the last, and in the few stations in which I have yet observed it in the county associated with that and *J. conglomeratus*, appearing to myself to be a hybrid or mule between these two rushes; rare? First noticed as a Hants plant by Mr. Borrer, who remarked it growing in 1847 about Hedge Corner, on the south side of Parkhurst Forest, along the road from Newport to Yarmouth!!! I find it here in considerable plenty, together with abundance of *J. glaucus*, *effusus*, and *conglomeratus*, from the two former of which I must own to experiencing a degree of difficulty in at all times distinguishing it, at first sight at least. I have no doubt of its existence in other parts of the island, but excepting when in fruit, its resemblance to some of the greener stemmed states of *J. glaucus* renders its detection less easy. On heathy pasture grounds, with *J. glaucus*, along the road from the "buildings" to the Passage House, Hayling Island, August 7th, 1848.

Juncus capitatus will probably be found ere long in Britain, and perhaps in this county, being frequent on the continent and in some places in Guernsey and Jersey.

Juncus obtusiflorus. In ditches and wet, boggy, or marshy places, often growing in the water, but not very common, either in the Isle of Wight or on the mainland. Ditches in the marsh at Easton (Fresh-water Gate), and where one or two of the low, boggy meadows are quite overrun with it. Near the shore just beyond Norton, towards the preventive station; sparingly. Wet banks of slipped land in Colwell Bay. Between the Needles (Groves's) Hotel and Alum Bay. On wet, slipped land near the Sandrock Spring, abundantly; and in various places betwixt Niton and Blackgang. Plentiful in the Undercliff, at Blackgang, and in Sandown Bay, Rev. G. E. Smith!!! Plentiful in marshy spots by the road-side in Stokes Bay, between Alverstoke and Brown Down, July, 1849. By Tichfield River and

near Hill Head, Mr. W. L. Notcutt. I have no station at any distance from the sea-coast to give for this species, so well marked by its pale flowers and very decomposed and singularly divaricate panicle.

Juncus acutiflorus. In muddy, boggy, or marshy places, on wet heaths, &c.; abundantly. Our low, wet meadows are sometimes quite covered with this rush.

Juncus lamprocarpus. With the last, and perhaps little, if at all, less frequent than that. The specific name is now generally, and very properly, spelt lamprocarpus instead of lampocarpus, as formerly; the allusion being to the shining (*λαμπρος*) aspect of the capsules, and not to any supposed resemblance they bear to a lamp.

Juncus supinus (*J. uliginosus*). In ditches, pools and pits, especially, I think, on a clay soil; also on wet, sandy heaths and commons; frequent. Var. β . Stems procumbent or floating, mostly proliferous.

Juncus subverticillatus. In gravel or clay-pits, &c. In a clay-pit near Bouldner. On Parkhurst Forest, &c.

Juncus squarrosus. On moist, barren, sandy pastures, moors, and heathy places. Quite rare in the Isle of Wight. On several parts of Black Down, abundantly. Moist pastures immediately about the Wilderness and Rookley Farm. Apparently by no means rare in mainland Hants. Most abundantly on Petersfield Heath. Heath near Steep. Short Heath, near Selborne. Most profusely on Wolmer Forest, near the pond, about Holy Water, &c. Profusely on the dry sandy heath about Ringwood and Christchurch, and probably common throughout the Poole basin and on the forest districts and moorlands of the county. I do not know of any distinctive name for this plant in Hants, but Mr. John Laurence tells me that in his native county of Aberdeen, where it abounds on the moors, it is called Bruckles by the country people, which, whatever may be the import of the word, is most expressive of the wire-like hardness and rigidity of the species.

Juncus compressus. Not, I have reason to believe, an uncommon plant in low or marshy meadows, especially near the sea; but all the stations I find amongst my notes relate to *J. Gerardi*, certainly the prevailing species or form along the coast both of the island and main, and which I am disposed to regard as a salt-marsh variety of *J. compressus*.

Juncus Gerardi (*J. cœnosus*). On muddy salt marshes and damp

sandy sea-shores; frequent. St. Helen's Spit. Plentiful at the mouth of the Wootton River. On the beach a little way out of Yarmouth eastward, and abundant in the first meadow, or that nearest to the sea, at Easton Marsh, Freshwater Gate, where it forms a considerable constituent of the coarse herbage of that half-drained bog—

Limosoque palus obducatur pascua junco.

Very common I think in most places along the coast. Profusely on the south side of Portsea Island, near a salt pond by the beach, about half a mile east of Southsea Castle, &c. I forbear giving more localities from memory, as some may belong to *J. compressus*. The Salters (Fareham), Mr. W. L. Notcutt. *J. tenuis*, *Willd.*, if the Scottish plant be the same, ought to be found in the south of England also, being a native of the plains of central Europe, but there is reason to doubt if the true *J. tenuis* was ever seen in N. Britain.

Juncus bufonius. By the margin of pools; in half-dried ditches and places where water has stood in winter, in moist sandy or gravelly spots by road-sides, on heaths, &c.; extremely common in every part of the county. *J. Tenageia*, a species very closely resembling the present, with pale brown, nearly globose capsules, should be looked for in the same localities, as being extremely likely, I conceive, to inhabit the south of England, as it does all the adjacent countries of Europe, both inland and near the coast.

Luzula sylvatica. In dry shady woods, groves, thickets and hilly heathy places amongst bushes, but not general. In woods about Shanklin and Cook's Castle, as in Cowpit Cliff and Hungerberry copses, near Apse farm, &c. Abundantly in one or two spots at Apse Castle. Little Standen Wood, near Newport; plentifully. In the Parsonage Lynch at Newchurch, abundantly, as well as in another wood, near that village. Not rare, and probably frequent in mainland Hants. In Amfield Wood, near Romsey; Cranbury Park woods, near Winton, in various places, and in a wood betwixt Otterbourne and the old church. In several parts of Akender Wood, near Alton, but somewhat sporadical, as it often is with us, although usually abundant in its several stations. Winchester Wood, by Rotherfield Park, and elsewhere in the county.

Luzula Forsteri. In woods, thickets, groves, and on shady hedgebanks; very general over the Isle of Wight, and I believe the rest of the county, where, as in some of the adjacent ones, as Surrey (and Sussex?), it is even more abundant than *L. pilosa*, frequent as is that

plant with us. Extremely common about Ryde, in Quarr Copse, St. John's, Apley, and in almost every other wood and patch of copse in the neighbourhood. Abundant in the Chine and elsewhere about Shanklin, at Appuldurcombe, and profusely in several parts of Apse Castle, in the dry heathy ground by America, and other spots of that romantic locality. Common about Cowes, in Mrs. Goodwin's grounds, in woods at Osborne, Norris Castle, &c. About Newport, in Little Standen Wood, &c. Abundant in Bordwood Copse, the Parsonage Lynch, and various other places about Newchurch. In the Undercliff, at Steephill, near Swainston, and in innumerable other places in the island, preferring a dry, friable, light soil, but often, as about Ryde, on stiff clay, or rather perhaps on the vegetable mould that lies upon it; it also grows on the chalk, but less commonly. I have not specially observed the distribution of *L. Forsteri* on the mainland, but am convinced it is not uncommon there. In a beech-hanger near Alton. Hedge-bank a little way out of Bishop's Waltham, towards Droxford. Abundant in a wood by the Newbury road from Andover, about a mile beyond Enham. Parnholt or Parnell Wood, near Winton. Copse near Whitedell, Mr. W. L. Notcutt. New Forest, Chas. Lyell, Esq., in Hook. and Graves's *Contin. of Fl. Lond.* Doubtless in many other places, but being, like the rest of the genus, a very early plant, after the flowers and fruit have disappeared in May or June, the species cannot, with that certainty required in giving localities, be distinguished by the foliage alone from some narrow-leaved states of *L. pilosa*, and hence is often overlooked for that species.

A doubt, I believe, exists in the minds of some British botanists who have not seen *L. Forsteri* in a fresh state, but only in the herbarium, as to its distinctness from *L. pilosa*; no one, however, to whom the plant is familiar in its native woods can, I think, reasonably entertain such an idea. Strong as is its general resemblance to *L. pilosa*, and which, when in the dried state and not in seed, may induce a suspicion of its being but a form of that species, there can never be the least difficulty in distinguishing *L. Forsteri* by its seed and capsules from that or any other species of the genus. There is a remarkable conformity in the aspect of the leaves amongst various unquestionably distinct species of *Luzula*, and the form of the perianth, and even the disposition of the panicle, afford characters little apparent or subject to modification; such, too, from my own experience, is the relative proportion in length between the anther and its filament, which is yet so far constant as to furnish a very fair subor-

dinate mark of distinction. Since *L. Forsteri* has not yet been detected in Ireland, and there seems great reason for thinking that some form of *L. pilosa* has been taken for it in Scotland, I may perhaps be doing a service to Scotch and Irish botanists by pointing out the characters of the former more in detail than has been done in the books most in use as field manuals; the more especially as I am unacquainted with any good figure of this plant, the one in 'English Botany' being wretchedly deficient, and the far superior drawing in Hooker and Graves's continuation of the 'Flora Londinensis,' besides that that sumptuous work is in still fewer hands than the other, depicts an extreme narrow-leaved form of *L. Forsteri*, and not the ordinary or normal state of the species, whilst the figures of the seeds and capsules both of this and *L. pilosa* are defective representations of their kind. *L. Forsteri* grows in precisely similar places, and often intermixed with *L. pilosa*, but flowers perhaps rather later than it, or when the latter commences to form capsules. The leaves in both are extremely similar, forming dense tufts, narrower in general in *L. Forsteri* than in *L. pilosa*, occasionally very much more so, at other times nearly as wide, and equally hairy. The panicle of *L. Forsteri* is cymose, of several compound, mostly erect, or rather patent or diverging branches, but of which two or three are usually reflexed or divaricate, especially after flowering, and the base of the panicle is subtended by an erect, sublinear bract, far narrower or less leaf-like than in *L. pilosa*, whatever may be the breadth of the root-leaves themselves. In the height of the stem, there is no constant difference between these plants. Flowers paler in general than those of *L. pilosa*, the segments of the perianth more finely taper-pointed or acuminate, very acute; anthers shorter than the perianth, about as long or rather longer than the compressed, ascending filaments; in *L. pilosa* the anther is above twice the length of the greenish and flattish filament, which proportions are tolerably constant within certain limits in each species. Ovary more acutely trigonate and more gradually tapering into the style than in *L. pilosa*. Capsule reddish-brown and shining, acutely triquetrous, the faces nearly plane, simply acute or acuminate, with no obtuse and conical contraction at the summit, and (including the hard, sharp, mucronate apex) about as long as the nearly erect perianth-segments. In *L. pilosa* the capsule is broadly ovoid, trigonous, obscurely three-lobed, with as many very blunt angles and convex intermediate faces, visibly contracting above into the very rounded and obtuse summit, of a subconical figure, sometimes minutely tipped

with the base of the style, but scarcely mucronate, much longer than the spreading and persistent persianth. Seeds* in *L. Forsteri* roundish, ovoid or nearly globose, bright brown, very smooth, polished and translucent, crested with a large, oblong, obtuse and oblique, but not at all hooked caruncle. The seeds of *L. pilosa* are precisely like those of *L. Forsteri* in form, size, and colour, but furnished with a caruncular appendage of at least twice the length, attenuated into a point and uncinately contorted.† The foregoing remarks will, I trust, enable our northern and western botanists to distinguish these two most indubitably separate, but assuredly closely related species, so long confounded, till the late Mr. E. Forster and Mr. Bicheno pointed out, the former in the panicle, the latter in the seed, characters by which *L. Forsteri* differed from its more common ally. The geographical distribution of the two species is moreover totally different, for whilst *L. pilosa* is dispersed over nearly the whole of Europe, almost to the northernmost extremity of Scandinavia, *L. Forsteri* is strictly a plant of southern and central Europe, even in Germany scarcely found, but in the middle and western part from Switzerland to Baden and Rhenish Prussia, and thence westward over France and a great part of England. I may add that the root of *L. Forsteri* is much less creeping or stoloniferous than in the other, a fact remarked also by Gaudin in his ‘*Flora Helvetica*.’

Luzula pilosa. In rather dry groves, thickets, copses and on bushy banks, often amongst dead leaves; very common over the entire county and Isle of Wight. Profusely in some parts of Apse Castle, with the two preceding species and the following. Extremely, perhaps usually, plentiful in woods by the Newbury road from Andover, a little beyond Enham; in one place associated with *L. Forsteri* and the following enigmatical species, state or variety.

Luzula ——— (nova species?) So long back as April, 1841, I was struck with the appearance of a *Luzula* growing plentifully at Apse Castle, near Shanklin, closely resembling *L. pilosa* in appearance, and having, like it, strongly divaricate and partly deflexed pe-

* The seeds of *Luzula* must be examined when quite recent, as they soon become dull, wrinkled and opaque by keeping, and the crest shrinks and loses its peculiar form and proportions, whilst the form of the capsules cannot be well seen after their dehiscence. From inattention to these points, the figures of the fructification of *L. pilosa* and *L. Forsteri*, in the exquisite supplementary plates of the edition of the ‘*Flora Londinensis*’ by Hooker and Graves, are sadly deficient in fidelity, both as to form and colour. These parts in *L. Forsteri* are much better drawn than in *L. pilosa*.

† As much or more bent than the letter S; in other words, doubly hooked.

duncles. A difference in the size and aspect of the plant led me to examine it more carefully, when I found that the seed resembled that of *L. Forsteri* in having the fleshy crest or appendage straight and obtuse, and wholly without the hook-like curvature in which the same appendage terminates in *L. pilosa*. I at once set it down for a remarkable variety of *L. Forsteri* with the panicle of *L. pilosa*, and as such preserved specimens in my herbarium, and sent others dried to Mr. Borrer, who, from not having seen fresh capsules and seed, was induced to pronounce it only *L. pilosa*, an opinion which led me to pay no further attention to the plant at that time, and it was suffered to lie unnoticed and almost forgotten, till last year, when the sight of the dried specimens, and their striking difference of aspect from *L. pilosa* and *Forsteri*, again prompted to a renewed investigation of the plant in its native haunts. The result of a long and laborious examination of some hundreds of specimens, and comparison with as many of the two allied species made on the spot at short intervals of time, and in every stage of their growth, has gone very far towards showing the Apse-Castle *Luzula* to be a species intermediate betwixt *L. pilosa* and *L. Forsteri*, yet sufficiently distinct from either, and for reasons which I shall adduce presently, by no means a mere production.

This curious plant grows very abundantly at Apse Castle,* in two or three places on sloping banks, under brushwood, in a dry, friable sandy mould, sometimes by itself, at other times in company with *L. pilosa* or *L. Forsteri*, or both, but in quantity much exceeding these last.† The following directions will enable any person to find it in one of its two principal stations with ease. Entering Apse Castle by the footway across the fields from Shanklin and Cliff Farm, or passing the gate opening into the dell (Tinker's Hole), keep the left hand green road or turf-walk, and proceed upwards till you come to the plantation of pines, skirting which the road continues, leaving the dell below on your right. Pursuing this walk, perhaps for a couple of hundred yards, a narrow track or footpath emerges from it on the right through the brushwood, which brings you in sight of a sloping pasture-field nearly surrounded by wood, at the foot of which field a brook parts it from the steep, copse-covered bank on its other side.

* For an account of this retired and picturesque spot, see page 534.

† It is worthy of remark, that *L. pilosa* and *Forsteri* abound most on that side of Apse Castle nearest to America, and furthest from the part where our new plant flourishes; yet although the two former grow copiously intermingled, or in patches adjacent to each other, I find none of the third kind there at all.

Crossing this brook, you will find the *Luzula* in plenty all along the foot of the bank and margin of the brook, mingled with a small proportion of *L. Forsteri*, and still less of *L. pilosa*. It also grows plentifully, and in nearly complete isolation, on the slope of the dell, a little below and opposite to the pine plantation before mentioned, under hazel and other shrubs, but the spot is less easy to direct a stranger to than the other. I shall now proceed to detail the characters of this new *Luzula*, if such it be. † Plant taller than either *L. pilosa* or *Forsteri*, eighteen or twenty inches high,* very slender. Leaves (root) longer than in *L. pilosa*, and quite as broad, laxer, more drooping or recurved at their extremities from their greater length, otherwise similar, excepting that their colour, viewed in the aggregate, is somewhat brighter green. Panicle resembling that of *L. pilosa*, but by no means the same, the very strongly reflexed and divaricate peduncles fewer and much longer, hence the flowers appear very widely scattered, and the outline of the panicle is quite oblong, not as in *L. pilosa*, roundish. The bract at the base of the panicle is long, narrow, and acuminate as in *L. Forsteri*, and the flowers are, as in that, pale, but with perianth-segments a little broader and less acuminate, or more like the same parts in *L. pilosa*. Stamens similar to those of *L. Forsteri*, but anthers rather longer, and somewhat exceeding the filaments in length. Ovary more obtuse than in *L. Forsteri*, not tapering at the top into the style as in that, with much thicker, blunter angles, each angle with a distinct furrow down its centre. Capsule much smaller than in either *L. pilosa* or *Forsteri*, and greatly shorter than the erect or converging perianth, ovoid, somewhat acute, trigonous, with three thickened, obtuse, furrowed angles. Seed always? abortive, a solitary one here and there apparently well-grown, but never, so far as I can find, acquiring full colour and maturity. The few I have been enabled to examine in this seemingly developed but unripe condition, resemble those of *L. Forsteri*, and like them have a straight, blunt appendage or crest, without a trace of any tendency to become hooked as in *L. pilosa*.† It now remains to be considered whether the Apse-Castle *Luzula* be a hybrid betwixt *L. pilosa* and *L. Forsteri*, or distinct from both. The numerous points

* *L. pilosa* and *L. Forsteri*, when growing near or amongst it, do not exceed their usual size, of about ten to twelve inches.

† Even here there is a doubt, which only perfectly ripened seeds can dispel. I have ascertained that the crest to the seeds of *L. pilosa* is at first straight, and does not elongate and become hooked till they are at least half grown.

of resemblance it bears to each of these species, and the apparently uniform sterility of the seed-vessels, strongly favour the idea of its being a mule production. But to this view of the matter are opposed the great abundance of the plant; its vast predominance in relative quantity over its two congeners, and excess of stature above its supposed parents. Neither are the characters which separate it from them purely intermediate; the panicle, as we have seen, although much like that of *L. pilosa*, is considerably different, and not more like that of *L. Forsteri*, and the shape of the capsule, if it be not modified by the abortion or want of maturity of the imbedded seed, has little resemblance to that of either progenitor. Although its pretensions are in my mind so equally poised, that I incline one day to hold it distinct, on another to regard it as a hybrid, or perhaps a sterile state of *L. pilosa* or *L. Forsteri*, it is hard to say which; I am yet not without hopes of satisfactorily adjusting its claim to specific distinction, but until perfectly ripe seed can be obtained, I hold it expedient to regard its true nature as undetermined. Plants have been forwarded for cultivation to Kew, to Mr. Babington for the Cambridge garden, to Mr. Borrer and Mr. Watson, whilst Dr. Salter and myself have it under our eye in the same state at Ryde. Placed amongst so many observers, and doubtless in a diversity of soil and situations, we may hope, even before this notice of it goes to press, to be enabled to report this enigmatical plant as having thrown off the mask, and shown itself in its true colours; for if not a distinct species, it cannot surely act the dissembler much longer, supposing it to be *L. pilosa* or *L. Forsteri* in disguise. Should it continue sterile under every kind of treatment, and retain its present characters unaltered, the fact of hybridity may be looked upon as fairly established. Mr. Borrer has remarked our *Luzula* in Sussex, near Luggershall, under Black Down; and Mr. Purchas writes me word he has found the same near Ross, in Herefordshire; it is probably not uncommon, therefore, which is greatly in favour of its being, if not distinct, at least no hybrid. As before observed, the foliage and flowers in this genus exhibit a remarkable similarity in nearly related but well defined species, whilst the form, size, colour, &c., of the seeds and capsules, are very discriminative of each kind; if, therefore, these last should be found to preserve their present characters in our Apse-Castle *Luzula* when ripe seeds are obtained, the plant may fairly rank as a species, differing as much as *L. Forsteri* does from *L. pilosa*, and intimately allied to both. Were it a mere sterile form of *L. pilosa*, one would expect to find a solitary

capsule of that species occasionally produced, but such has never once occurred in the almost innumerable tufts I have examined in their native locality.

W. A. BROMFIELD.

(To be continued).

Contents of the 'Botanical Gazette,' No 19, July, 1850.

On the mode of action of Heat upon Plants, and particularly the effect of the Solar Rays. By M. Alphonse De Candolle. [Translation from the Bibliothèque Universelle de Genève, March, 1850.]

Note on *Viola stagnina*. By Charles C. Babington, M.A. [To the other characters by which Mr. B. would distinguish this plant from *V. lactea* of Smith, he adds that "of a slender rhizoma, spreading rather extensively through the peaty soil which the plant inhabits, and sending up at short intervals what have the appearance of being distinct individuals."]

Remarks on *Mentha sativa* and *gentilis* of Linneus. By Dr. C. J. Hartmann. [Translation from the 'Flora' of January 28, 1850. Dr. Hartmann contends that Fries has misapplied the Linnean names of these plants, and that the nomenclature is thus: *M. sativa*, *Linn.* = *M. gentilis*, *Fries.*; *M. gentilis*, *Linn.* = *M. rubra*, *Fries.*; *M. Aghardiana*, *Fries.* = *M. sativa*, *Fries.*]

On *Sagina apetala*, L. and *S. ciliata*, *Fries*, with some remarks on the mode of discriminating species. By Arthur Henfrey, F.L.S., &c. [Mr. Henfrey concludes the latter of these to be a variety of *S. apetala*, not a species permanently distinct from it. His grounds for this conclusion appear to be sound and sufficient, but must be consulted in the original.]

A Monograph of the Hieracia. [Continuation of the abstract from Fries's 'Symbolæ ad Historiam Hieraceorum.']

Literature: Wigand's 'Principles of Vegetable Teratology.' Woods' 'Tourist's Flora.' Contents of various botanical journals.

Proceedings of Societies: Botanical Society of London. Botanical Society of Edinburgh.

Miscellanea: Record of Localities. Woods on the genus *Orobanche*. Itzigsohn on Antheridia in Lichens. Collections of plants for sale.

Contents of 'Hooker's Journal of Botany,' No. 19, July, 1850.

Continuation of Mr. Spruce's Letters from South America.

Report on the Dried Plants collected by Mr. Spruce in the neighbourhood of Para. By George Bentham, Esq.

Continuation of Dr. J. D. Hooker's Letters from India.

Botanical Information : Victoria Regia.

Notices of Books : Martius's *Genera et Species Palmarum*. The Gardener's Magazine of Botany, &c.

Botanical Society of London.

Friday, July 5, 1850. J. H. Wilson, Esq., F.L.S., in the chair.

J. P. Norman, Esq., of London, and T. Dutton, Esq., of Bath, were elected members.

Mr. George Maw exhibited specimens of *Lilium pyrenaicum*, discovered by him between South Molton and Mollond, Devonshire, in June last.

Dr. Arthur Hassell read a paper "On the Colouration of the Water of the Serpentine." In this communication it was shown that the periodical and vivid green colouration of the water of the Serpentine is due to the presence of a minute plant belonging to the tribe of Algæ, of which the writer gave a detailed and critical description, and which he named *Corriophytum Thompsoni*. The development of this plant takes place early in the spring, out of sight and at the bottom of the water, and it is only on the approach of the warm weather of summer that it diffuses itself through the water, deeply colouring it, and that part of it rises to the surface, forming a scum or pellicle of a bright æruginous or coppery-green colour. The whole of the water of the Serpentine is not usually coloured at one time, but different portions of it at different times, according to the strength and direction of the wind which drives the plant before it; at one time it is found collected at the Hyde Park extremity, at another it is present in the Kensington division, sometimes on the north, and at others on the south shore, the remaining parts of the Serpentine being entirely free from the plant. This variable distribution, which, unexplained, would be apt to occasion surprise, accounts for the fact that the observer may sometimes visit the Serpentine and not see a trace of the

plant in question, and hence he might be led to form an erroneous conclusion as to the condition of the water. The observer, therefore, who wishes to come at its real state, should make the tour of the whole of the Serpentine. Considered in a sanitary point of view, Dr. Hassall is of opinion that the plant, when actually introduced into the system, as when swallowed in bathing, would not be productive of effects injurious to health, and regards it as a test of impurity and as an evidence of the very bad condition in which the water of the Serpentine now undoubtedly is. Dr. Hassall concluded the communication by observing that the colouration of large pieces of water by means of *Confervæ* is by no means unfrequent, and cited as a remarkable instance of it the Red Sea, which owes its name and colour to the presence of a minute plant diffused through the water of a blood-red colour.—*G. E. D.*

Anacharis alsinastrum of Babington at Watford Locks.

By THOMAS KIRK, Esq.

IN announcing the discovery of this plant at Watford Locks, I expressed an opinion, founded chiefly on the fact that it had only been announced from artificial and extremely suspicious localities, of its being an introduced plant. The subsequent announcement of its discovery in natural localities in Nottinghamshire, Staffordshire, and Berwickshire, having proved it a true native, I have thought a short account of a summer visit to Watford Locks might not be unacceptable to those botanists who have had no opportunity of seeing the plant in a living state.

The *Anacharis* is abundant in all the reservoirs attached to the Locks, the plant growing in such dense masses that it is with difficulty good-sized single specimens can be detached, owing to its extreme brittleness. Flowers were only procurable in those places where the water was but slightly disturbed, and were most abundant in the upper reservoir, the water of which is much less disturbed than either of the others; there they were in profusion, looking at a short distance like threads of white silk which had been scattered over the surface of the water. I, however, searched all the reservoirs in vain for the least trace of female flowers; and, I believe, none have yet been found in this country. Many large, matted patches of the plant occur in the canal itself, both above and below the Locks, but I could

not detect a single flower on any of these, owing, as I suppose, to their being too frequently disturbed by the passing of boats.

The lockman kindly volunteered his assistance in gathering specimens, and in the course of conversation, informed me that it was quite as abundant when he first came to the Locks five years ago as at the present time, although the reservoirs had been cleaned out once or twice during that period. He further informed me, that he had formerly resided at Foxton Locks, and that the reservoirs there were "full of it more than twenty years back," also that it had been plentiful in the Market Harborough Canal during the whole of that period. A short time after this conversation took place, two labourers belonging to the Locks came up; both of them confirmed the statement of its being plentiful in the Market Harborough Canal, and one of them added, that the "Welford Branch," a narrow canal, comparatively little used, was so full of it that the passage of boats was impeded, and the canal necessitated to be cleared out once or twice a year, and that it had been so for many years.

How very remarkable that for so long a period this plant, by no means an inconspicuous one, in widely separated localities, should with the single exception of Berwickshire, have totally escaped the notice of botanists!

As it may be a temptation to some botanist to visit the locality, I will just add, the Locks are situate little more than half a mile from the Crick Station of the London and North Western Railway, on the Coventry side. The canal crosses the turnpike-road at a short distance from the station-gates, and by following its course for little more than half a mile the Locks would be reached. Several patches of *Anacharis* occur in the canal by the waste ground adjoining the Railway Station, intermingled with *Potamogeton pectinatus* and others, amongst them the little-known *P. zosteraceus*, which is also abundant between the Locks and Crick Tunnel. *P. zosteræfolius* and *compressus* occur in the upper reservoir; and in a rivulet near it grows *Ranunculus circinatus*, &c.

The best time for visiting the locality is towards the latter end of August; when I visited the spot on the 13th of that month, the plant had not nearly reached its maximum of flowering.

THOMAS KIRK.

Coventry, July 22, 1850.

Some Remarks on the specific characters of the Greater and Smaller Butterfly Orchises (Platanthera chlorantha and bifolia). By
WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

IN a late part of my Catalogue of Hampshire Plants, in this journal (Phytol. iii. 903 *et seq.*), I expressed myself in doubt of the value as species of the greater and smaller butterfly orchises, although distinguished as such even by the older botanists of this kingdom, and in our own day well illustrated by Mr. Babington in the seventeenth volume of the 'Linnean Transactions.' A recent and renewed examination of these beautiful and fragrant plants, made on an extensive series of each in a fresh state, from various parts of this neighbourhood and of Alton, has, I confess, removed much of the doubt I till then felt on the question of their specific diversity. Still, it must be owned there is too close a resemblance in the aspect, habit and structure of these *Platantheræ* not to leave a suspicion behind, that with all their apparently constant differences and well-marked characters, they may nevertheless be but forms of a single species; yet, since it would be equally difficult to prove the negative as the positive proposition in the absence of intermediate states, which I am unable to produce, I shall rest satisfied with assuming the truth of the latter, and with pointing out, in corroboration of the views of those botanists who hold the two plants indubitably distinct, some additional marks of difference, together with the characters already laid down for their discrimination, placing those of each kind in juxtaposition, in a synoptic or tabular form, for readier comparison. It may with truth be contended that our *Platantheræ* differ from each other quite as widely as do *Orchis maculata* and *O. latifolia*, which no botanist, so far as I am aware, has had the hardihood to reduce to varieties of a single species.

Platanthera bifolia (the smaller butterfly orchis) I now find in many of the beechen woodlands so extensively spread over the whole neighbourhood of Alton, as in Akender Wood, Chawton Park, at Medstead, and notably in woods by Rotherfield Park, as in Winchester Wood and Carter's Copse, as also in Froxfield Hangers, near Petersfield,* from all of which stations, as well as from other places, an abundant set of specimens was gathered a few days back, and

* These beechen uplands produce copiously certain plants rather characteristic of the flora of the northern or midland counties, as *Hypericum dubium* (more common even than *H. perforatum* at Chawton and Rotherfield), and especially *Epilobium angustifolium*, which, frequent though it be in Hants, occurs about Alton in bound-

rigorously and simultaneously compared with as multitudinous a supply of examples of *P. chlorantha*, from the thickly wooded slopes of the chalk range called Hawkley Hangers, a few miles from this village, as also from other localities where the greater butterfly orchis abounds, which it does far more generally and plentifully in this county than the smaller kind. I have thus assured myself that the differences detailed below were not merely accidental or individual peculiarities, but were at least common to all the plants of these species in the district within which the examples submitted to examination were collected, if they may not hold good in specimens from parts of the country more remote, which I must leave to other and abler observers than myself to ascertain.

Besides the leading or most prominent character which serves to distinguish our two *Platantheræ*, the parallelism and divergence of the cells of the anther, there are several subordinate ones apparently no less constant, but which, from having been overlooked or slightly alluded to, I now proceed to exhibit, in conjunction with the longer recognized and more obvious marks of distinction, in the subjoined tabular view.

Platanthera chlorantha.

Platanthera bifolia.

<i>Anther</i> much broader than long, very concave anteriorly, the connective (column) with a <i>prominent</i>	<i>Anther</i> about as broad as long, or even narrower, connective (column) plane, or by the approxima-
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less profusion, literally filling the woods at the two last named places, and making a glorious appearance in July and August. Another plant more frequent, I think, in the midland counties than in those along the south coast—*Convallaria multiflora*—I have now ascertained to be dispersed over nearly every part of Hampshire (the Isle of Wight excepted), abounding in most of the central, northern and south-eastern parts, and at least as far westward as Harewood Forest, near Andover, where it is common in very many parts of that sequestered woodland tract. I do not find mention made by any author of the strong smell emitted by the Solomon's seal, which resides in the root, stem and fleshy bases of the leaves, and exactly resembles the odour of *Iris fœtidissima*, but is even more powerful than in that plant. The bruised leaves themselves exhale no peculiar smell. Does *C. Polygonatum*, which I cannot succeed in rediscovering this season in Mr. Woods' old station of Chawton Park, possess the same smell? If it does not, the knowledge of the above fact may aid in detecting the latter when out of bloom, at which time its great similarity to *C. multiflora*, the stem of which, in the larger plants especially, is often furrowed and subangular, and in the smaller commonly compressed and almost two-edged, may occasion it to be overlooked for that more abundant and less local species.

Platanthera chlorantha.

ridge in front or between the cells, which are *widely diverging at their lower ends*, and obliquely ascending inwards and backwards.

Stigma very broad and concave, forming a semicircular, basin-like cavity; slightly pointed in the middle by a thickened glandulose projection of its superior margin.

Lateral petals narrow or *attenuated* almost from their rounded bases, *curved over* the stigma, their tips crossing or overlying, and forming an *arch just above* the anther, occasionally merely approximate or conjoined at their summits. *Inferior petal* (lip) longer and narrower than in *P. bifolia*, mostly curved downwards and backwards.

Lateral sepals (usually) more deflexed than in *P. bifolia*.

Spur very strongly keeled and compressed, *visibly dilated or subclavate at the extremity*, and mostly much curved downwards; twice or thrice as thick as in *P. bifolia*,

Platanthera bifolia.

tion of the cells appearing to form a groove in front; cells of the anther rising almost perpendicularly, parallel throughout.

Stigma scarcely one-third the size it is in *P. chlorantha*, its superior posterior margin much thickened into a prominent, gland-like projection in the centre, occupying nearly the whole space between the lower ends of the anther-cells.

Lateral petals but little diminished in width, or nearly as broad throughout as their rounded bases, *rising almost perpendicularly*, and *converging much above* the anther, their tips not crossing or overlapping, but erect, usually conjoined below their summits, the latter in that case spreading or diverging, sometimes simply approximate and erect (not touching or conjoined). *Inferior petal* or lip shorter and broader than in *P. chlorantha*, and in general straighter, but little (or often not at all) decurved.

Lateral sepals spreading horizontally, seldom, or but little deflexed, except at the tips.

Spur keeled and compressed, filiform and subcylindrical, or of equal thickness throughout, or very nearly so, extremely slender, and usually straighter than in *P.*

Platanthera chlorantha.

and rather inclined to take a prone than a horizontal direction.

Platanthera bifolia.

chlorantha, nor is it in general so pronely directed as in that, but tends more to a horizontal than a vertical position.

In size, *P. bifolia* is usually inferior to *P. chlorantha*, but specimens of the former may often be met with as tall as most of the latter. I find the degree of greenness or whiteness in the flowers a variable and reciprocal character; neither can I detect any difference in the leaves, bracts or other organs, except the floral ones, unless it be that in *P. bifolia* the leaves look commonly as if highly varnished underneath, which is perhaps less frequently and conspicuously seen in *P. chlorantha*. Pollen-grains in both oblong and truncate, pale yellow.

W. A. BROMFIELD.

Selborne, Hants, June 14, 1850.

Note on Agraphis nutans. By GEORGE LUXFORD, A.L.S., &c.

THIS pretty plant is known by the name of Blue-bottle in many parts of Surrey, as well as in the Isle of Wight (Phytol. iii. 973); but when a boy, I was taught to believe that this name had reference to the flask-shaped ovary and style, divested of the floral envelopes, not to the form of the flower. Last May I had the pleasure of seeing the delicate white variety in considerable abundance in a wood near Chislehurst, in Kent.

G. LUXFORD.

East Temple Chambers,
August 1, 1850.

On the British Species of Hieracium contained in the 'Symbolæ ad Historiam Hieraciorum' of Fries. By JAMES BLADON, Esq.

AN abstract of the introductory part of the monograph (containing the general observations and the grouping of the species), translated from the 'Flora,' having appeared in a contemporary botanical periodical, I shall at present chiefly confine myself to the synonymy of our species; as one of the latest, and that in general use, I shall take the second edition of Babington's 'Manual' for comparison, first exhibiting a tabular view of the species as they stand in each work.

<i>Babington.</i>	<i>Fries.</i>
No.	No.
1. <i>Pilosella</i> , <i>Linn.</i>	1. <i>Pilosella</i> , <i>Linn.</i>
2. <i>dubium</i> , <i>Linn.</i> ?	2. <i>stoloniflorum</i> , <i>Waldst.</i>
3. <i>Auricula</i> , <i>Linn.</i> ?	8. <i>glaciale</i> , <i>Lachen.</i>
4. <i>aurantiacum</i> , <i>Linn.</i>	16. <i>aurantiacum</i> , <i>Linn.</i>
5. <i>alpinum</i> , <i>Linn.</i>	49. <i>alpinum</i> , <i>Linn.</i>
„ b. <i>Halleri</i> , <i>Hook.</i>	50. <i>sudeticum</i> , <i>Wimm.</i>
6. <i>nigrescens</i> , <i>Willd.</i>	75. <i>nigrescens</i> , <i>Willd.</i>
7. <i>villosum</i> , <i>Linn.</i>	?
8. <i>murorum</i> , <i>Linn.</i>	80. <i>cæsium</i> , <i>Fries</i>
9. <i>Schmidtii</i> , <i>Tausch</i>	67. <i>pallidum</i> , <i>Bivon.</i>
10. <i>Lawsoni</i> , <i>Sm.</i>	{ 37. <i>trichocephalum</i> , <i>Willd.</i>
11. <i>vulgatum</i> , <i>Fries</i>	{ 37.* <i>anglicum</i> , <i>Fries</i>
12. <i>Lapeyrousii</i> , <i>Fræel.</i>	82. <i>vulgatum</i> , <i>Fries</i>
13. <i>cerinthoides</i> , <i>L.</i> ?	40. <i>Iricum</i> , <i>Fries</i>
14. <i>amplexicaule</i> , <i>Linn.</i>	38. <i>cerinthoides</i> , <i>Linn.</i>
15. <i>denticulatum</i> , <i>Sm.</i>	53. <i>amplexicaule</i> , <i>Linn.</i>
16. ? <i>prenanthoides</i> , <i>Vill.</i>	124. <i>prenanthoides</i> , var. (<i>Vill.</i>) <i>paucifolium</i>
17. <i>inuloides</i> , <i>Tausch</i>	126. <i>strictum</i> , <i>Fries</i>
18. <i>boreale</i> , <i>Fries</i>	140. <i>crocatum</i> , <i>Fries</i>
19. <i>tridentatum</i> , <i>Fries</i>	145. <i>boreale</i> , <i>Fries</i>
20. <i>rigidum</i> , <i>Fries</i>	132. <i>tridentatum</i> , <i>Fries</i>
21. <i>umbellatum</i> , <i>Linn.</i>	133. <i>rigidum</i> , <i>Hartman</i>
	135. <i>umbellatum</i> , <i>Linn.</i>

Besides the above we have—

- 71. *oreades*, *Fries*
- 72. *saxifragum*, *Fries*

*Babington.**Fries.*

- 75.*atratum, *Fries*
- 78. murorum, *Linn.*
- 79. plumbeum, *Fries*
- 84. gothicum, *Fries*, and two varieties
- 89. dovrense, *Fries*
- 146. virescens, *Sonder*

The old adage, "Who shall decide when doctors disagree?" is fully exemplified in this troublesome genus; even the original describers are in error in some instances; others, with the plant and figure before them, are held to have described a different plant: out of twenty-one species described in the 'Manual' we are to have no less than twelve fresh names.

1. *Pilosella*, *Linn.*, the variety b. *Peleterianum*, *Gaud.*, No. 3, *Frœlich* in *De Candolle's 'Prodromus,'* vol. vii. p. 200, is re-named *pilosissimum* (p. 3, *Fries*).

2. *dubium*, *Linn.*? = *stoloniflorum*, *Waldst.* and *Kit.* Pl. Hung. p. 303, t. 273, *optima* (No. 7, *bifurcum*, *Frœl.* l. c.), *dubium*, *Huds.*? *Woodward*, and *Withering*, cum descrip. *eximia* indeque etiam *Smith*, Brit. p. 828, *E. Bot.* 2332, at non *Smith's 'Compendium'* et 'English Flora.'—Forsan in *Anglia Boreali*, p. 6, F.

3. *Auricula*, *Linn.*? *E. Bot.* 2368 = *glaciale*, *Lachen.* *Acta Helv.*, var. *angustifolium*, *Hoppe* (No. 22, *angustifolium*, *Frœl.*), p. 13.

3. *Auricula*, *Linn.* = *dubium*, *Smith*, *Eng. Flora*, iii. 356, at non *Linn.* nec ipsius *Flo. Brit.*, *Eng. Bot.* (No. 10, *Auricula*, *Frœl.*)—p. 14.

4. *aurantiacum*, *Linn.* *E. Bot.* 1469.—In *Britannia adventitium* creditur, (No. 19, *Frœl.*)

5. *alpinum*, *L.*, *Smith*, *E. Bot.* 1110.

„ b. *Halleri*, *E. Bot.* 2379 = this is cited as well as ? *villosum*, *Dickson!* in 'Linnean Transactions,' for *sudeticum* (No. 35, *Frœl.*), p. 73. See below, *villosum*.

6. *nigrescens*, *Willd.* = Broad dented *Hawklung*, *Petiver*, Brit. t. 13, f. 3, *murorum* δ . *Smith*, Brit. iii. p. 1404 (No. 36, *Frœl.*)

7. *villosum*, *L.* Quid *H. villosum*, *Babington?* valde *pilosum* l. *oreades?* *dubia* de *H. Lawsoni*, *Anglis* colectivo, *suis locis* notavimus.

8. *murorum*, *L.* = *cæsium*, *Fries*, *murorum*, *Linn.*, pr. p. et *Auct. plu. Smith*, *Comp.* p. 131 (β . ejusdem, *Fl. Brit.* p. 830), et *Transac.* ix. p. 236! *Eng. Bot.* 2082!

**Hypochærides*, Bot. Brit. rec.—pro var. *H. maculati* misit Cel. Woods formam singularem.

Murorum, *Linn.*, var. *silvaticum* Linn. β ., *Smith!* Engl. Flora, iii. p. 359, et Auct. s. laud. (a reliquis male interpretatum!), *Petiver*, Brit. 13, f. 3: this is quoted above; see *nigrescens*.

9. *Schmidtii*, *Tausch* = *pallidum*, *Fries*, *Lawsoni*, Bot. Scot. pr. p. Halleri, *Curtis*, Lond. 215 (*H. scapigero accedens*). (No. 55, *Sternbergii*, et 116, *Schmidtii*, *Fræel.*)

There is no reference under *diaphanum* to either *Schmidtii* or *Lawsoni*, or to the 'Manual.'

10. *Lawsoni*, *Sm.* E. Bot. 2083 = *trichocephalum*, *Fries* (No. 37, p. 56), cfr. obs. infra.

„ *Babington!* Man. 169 (rec 196), *Borrer!* *Woods!* *Balfour!* = *H. anglicum*, *Fries* (No. 37* p. 93).

H. leptocaulon hirsutum folio longiore, *Raii* Syn. 3, 169, ex icone in Eng. Bot. hoc potissimum referendum, sed typus iconis est planta culta, et inter numerosissima specimina spontanea *H. Lawsoni* nulla cum præcedente prorsus congruunt. Primitivum *H. Lawsoni* (*Villarsii* exclus. tamen synonymo *Lawsoni*) sistit *H. saxatile*, plantam cum *H. trichocephalo* eximie analogam *H. Lawsoni*, *Brit.* (exclus. syn. Vill.) est inter omnia *Hieracia* mihi difficillimum, cum numerosissima præsentia specimina inter se maxime differant. Specimina *Irlandica* ad *H. cerinthoides*, ad quod *H. Lawsoni*, *Smith*, retulit *Koch!* potissimum pertinent, sed caulis submonophyllus. Specimina *Anglica* (*Teesdale*, etc.) a *Borrer*, *Babington*, *Woods*, etc. sistunt *H. pilosum*, β . subnudum, *Fræel.*, de quo iudicium ferre in præsentem non ausus sum, at subjungam descriptionem; Caulis scapiformis, nudus l. monophyllus, pedalis circiter, simplex l. sæpius in pedunculus 2-4 elongatos subarcuato-adscendentes *bracteis*, nec foliis, *suffultos*. Folia radicalia rosulata longe petiolata (petiolo vix alato, plus minus hirsuto), exteriora subrotunda, obtusa, integerrima, reliqua ovata l. elliptica, acuta, denticulata, caulina nulla, l. diminuta sessilia. Capitula et ligulæ prioris. Specimina *Babingtonii* intense glauca et fere glabra; *Borreri* pallida et hirsuta, ex eodem loco. Foliis omnibus rosulatis, caule subnudo, anthela discreta, ad *Pulmonareas* maxime accedit. Alia dein specimina *H. Lawsoni* e *Scotia* (*Aberdeen!* etc.) omnino ad *Pulmonareas* pertinent. Malo dubia profiteri, quam ex characteribus l. arbitrio sententiare.—page 57.

11. vulgatum, *Fries*.

a. *Varietates angustifoliæ, subglabræ.*

H. vulg.-genuinum. *H. maculatum*, *Smith*, Eng. Fl. iii. p. 360, Eng. Bot. 2121, haud bona. Var. foliis maculatis, *Bab.* p. 196.

c. *Varietates latifoliæ, plus minus hirsutæ, virides.*

H. nemorosum = *murorum*, *Smith*, Brit. ii. 230, a, b. = *sylvaticum*, *Smith*, Linn. Trans. ix. p. 239, a. E. Bot. 2031, Eng. Flo. iii. p. 361. (Bene quidem monet hoc et cultum et loco constanter differre ab *H. vulgato-genuino*, i. e. suo *H. maculata*, sed notas non invenifidas). The only reference to Fræel. is, Frölich, l. c. p. 214, *H. silvaticum*, *Ejusd.*, mixta planta, ex magna parte priorum formæ *nemorosæ*!)

12. *Lapeyrousii*, *Fræel.* ? = *iricum*, *Fries*, *Bab.* ! ed. 2, p. 196, E. 2916, *Borrer* ! Soc. Bot. Ed. ! non Frölich.

H. Lapeyrousii, *Fræel.*, apud *De C.* vii. p. 232, est species omnino mixta et delenda, singulæ vero formæ ab *H. irico* diversæ sunt. Var. *villosa* est sequens, *flexuosa* videtur *H. corruscans* ; reliquæ et forma primaria ad stirpem *H. laniferi* pertinent.

13. *cerinthoides*, *Linn.* ? = *cerinthoides*, *Linn.* ! Spec. ii. 1129, *Smith* ! E. Fl. iii. p. 365, E. Bot. 2370 (rec. 2378), *Bab.* ed. 2, p. 196. Planta culta ! ; spontanea ex Anglia sub nomine *H. Lawsoni* mittitur !

14. *amplexicaule*, *Linn.* = E. Bot. ! 2690. Per alpes australes, copiose, nec non in Anglia ! adventitium in muris vetustis (specimina vero indigena Scotica ! ad *H. dovrense*).

15. *denticulatum*, *Smith* = *prenanthoides*, *Vill.* ! E. Bot. 2122 (non *Smith*, Eng. Flo. iii. 369), *Fræel.* ! vii. p. 221 (rec. 211, No. 42), *Bab.* ! Man. ed. 1, p. 184 = *H. spicatum*, *Dickson* ! in Linn. Trans. ii. p. 288 = var. *paucifolium*. *H. denticulatum*, *Smith*, E. Fl. l. c. ex *Borrer* ! lusus vegetior, latifolius.

16. *prenanthoides*, *Vill.* ? E. Bot. 2235, an *H. prenanthoides*, *Smith*, Eng. Fl. l. c., E. Bot. 2235, at minime specc. *Borreri* ! etc. = *H. strictum*, *Fries*, var. *granulatum*.

Desperandum sæpe de synonymis recentiorum extricandis cum notæ variabiles modo indicantur. Hoc vero habeo e locis Smithianis sub nom. *H. inuloidis*, et primarium sub nomine *H. rigidi*, ad Ochill Hills Scotiæ lectum a Dr. Dewar. There is no reference under either of the last two to the second edition of the 'Manual.'

17. *inuloides*, *Tausch* ! = *H. crocatum*, *Fries*, var. *dilatatum*. *Crocatum* vero = *sabaudum*, β . *Smith*, Brit. et Engl. Fl. iii. p. 368.

18. *boreale*, *Fries* = *sabaudum* *Smith*, Brit. 384, a. E. Bot. 349.

19. *tridentatum*, *Fries*. The only English reference is *Bab.* ! 2, 199.

20. *rigidum*, *Fries*. The only modern English reference is *Bab.* ! 2, 199.

21. *umbellatum*, *Linn. E. Bot.* 1771. There is no allusion to the var. β . *Taylori*.

The following are the species not in the 'Manual':—

22. No. 71, *oreades*, *Fries*, p. 100 = *H. macrocaulon hirsutum* folio rotundiore *Raii* *Syn.* 169, cited by *Smith*, *Eng. Fl.* iii. 359, for *H. murorum*, (in *Anglia boreali ex Dillenio*).

H. oreades, *phyllopodium*, *intense glaucum*, caule subramoso folioso, foliis oblongis medio denticulatis margine subtusque piloso-crinitis, caulinis sessilibus, anthela contigua canofloccosa involucrisque tumidis utrinque truncatis, albocrinitis, squamis obtusis, ligulis eximie ciliatis, stylo luteo.

23. No. 72, *saxifragum*: in the geography of the genus he gives it as a British species with a ! but in the account of the species he gives no British locality, unless it is included in "in montibus Europæ mediæ rarius."

24. No. 75* *atratum*: this is in the same predicament as the foregoing species.

25. No. 78, *murorum*, *Linn.*: for the normal form of this species there is no English author quoted. See above, No. 10, for the variety *sylvaticum*; the variety *pilosissimum* has *Ben Bulbin*, *Ireland*, for its locality.

26. No. 79, *plumbeum*: this is marked in the geography as British, without any locality assigned.

27. No. 84, *gothicum*, p. 121: *hypophyllopodium*, obscure viride, caule rigido folioso apice subcorymboso erectove-ramoso, foliis ovatis lanceolatisve medio grosse dentatis, radicalibus breve petiolatis, caulinis sessilibus, anthela contigua, involucris nudis atrovirentibus siccis atris, carina glandulosa, pilosis, squamis spiraliter imbricatis latis plurimis obtusis apice glabris, stylo fusco-hispidulo, pappo eximie rufescente—*maximum*. Var. a. "*H. murorum*," *Vahl.*! e *Grœnlandia*.

Var. b, "*H. pulmonarei* var."! *Woods* ex *Anglia*, caule elongato paucifolio, foliis caulinis petiolatis basi grosse porrecto-dentatis, capitulis paucis globosis magnis, squamis cuspidatis, ligulis ciliatis. Habitus *H. vulgati*, at proprius var. c. *H. asperifolium*, s. "*H. sylvatici* var." a *Cel. Leighton*, in *Shropshire, Angliæ*, *pumilum*, caule inferne folioso, foliis ovatis pilis brevissimis confertis basi bulbosis, quasi glandulosis, asperrimis, corymbo multifloro, squamis obtusis, ligulis glabris.

28. No. 89, *dovrense*, *hypophyllopodium*, viridi-pallens, caule simplici folioso apice in pedunculos paucos strictos 1, *oligocephalos* cano-

floccosos et nigro-glandulosos *diviso*, oliis oblongis lanceolatisve dentatis, radicalibus petiolatis minoribus marcescentibus, *caulinis* sessilibus *superioribus basi cordata semiamplexicaulibus*, *involucris nigricantibus pilosis* squamis latis obtusis *ligulis ciliatis*, achæniis badiofuscis.

H. fruticosum alpinum latifolium minus, uno alterove in summo flore. Raii Hist. iii. p. 178, Syn. Brit. 170, omnino.

H. amplexicaule accedens, *Smith*, Eng. Fl. iii. ! in obs.

29. No. 146, H. virescens, *Sonder*, aphyllopodium, caule dense folioso, *foliis sessilibus* ovatis lanceolatisve *medio dentatis*, subtus crebre triplinerviis, anthela racemoso-corymbosa paniculataque basi foliolosa, *involucris basi attenuatis* nudis *squamis* sursum attenuatis *apiceque flocculosis* margine pallidis, stylo luteo fuscescente.

In Surrey, Angliæ, *Woods* !

JAMES BLADON.

Pont-y-Pool, July 22, 1850.

Note on Sagina procumbens with double flowers.

By the REV. R. C. DOUGLAS, M.A.

ON the 27th of last June, I found *Sagina procumbens* with double flowers, growing amongst *Sphagnum* in a small bog by the road-side about half way between Stafford and Rugeley. All parts of the flower, with the exception of the calyx, being converted into pure white petals, it presented a most beautiful appearance when seen through a magnifier. The occurrence of double flowers in a plant whose petals are usually so inconspicuous seems remarkable ; is it not also the smallest known example of the double flower so much prized by florists ? In Baxter's 'British Phænogamous Botany,' vol. iii. plate 199, there is a figure of this variety, from a plant grown in the Oxford Botanic Garden. In the text it is stated to have been "first found by the late Rev. H. Davis, author of 'Welsh Botanology,' on a green near Beaumaris, in the Isle of Anglesey, in July, 1817."

R. C. DOUGLAS.

Forebridge, Stafford,
August 12, 1850.

Contents of the 'Botanical Gazette,' No 20, August, 1850.

On the Coloration of the Water of the Serpentine. By A. H. Hassall, M.B. [Mr. Hassall attributes the colouring of the water to a confervoid plant, the *Anabaina Flos-aquæ* of himself and Dr. Harvey, and the *Dolichospermum Thompsoni* of Mr. Ralfs, but which he now describes under a new generic name, *Coniophytum Thompsoni*.]

Further Remarks on *Fumaria Vaillantii* and *F. parviflora*. By the Editor. [It appears that two species of *Fumaria* occur in the vicinity of Saffron Walden, growing intermixed, and both having probably been distributed among botanists under one or other of these two names; the specimens more or less commingled together, and the names therefore equally crossed.]

A Monograph of the *Hieracia*; being an abstract of Prof. Fries's '*Symbolæ ad Historiam Hieraciorum*.' Continued from a former No. [The species are here enumerated and partly described, though neither in a very clear, nor very satisfactory manner; but whether this may be the fault of the English translation, of the German abstract, or of the original composition of Fries, would require careful collation to decide upon.]

Literature: Kunth's '*Enumeratio Plantarum*,' Tomus v. Unger's '*Genera et Species Plantarum Fossilium*.' Contents of various botanical journals.

Proceedings of Societies: Linnean Society. Botanical Society of London.

Miscellanea: Record of Localities. On the Ciliary Movement of the Pollen-grains of certain *Phanerogamia*. *Fedia carinata* raised true from seed. Collections of Plants for sale.

Contents of 'Hooker's Journal of Botany,' No. 20, August, 1850.

Continuation of Mr. Spruce's Letters from South America.

Report on the Dried Plants collected by Mr. Spruce in the neighbourhood of Para. By George Bentham, Esq.

Continuation of Dr. J. D. Hooker's Letters from India.

Botanical Information : Eboë Nut. Chinese Rice-paper. Herbarium of M. Barneoud. Notes on Cleomella, by Dr. Torrey.

Notices of Books : New edition of the 'British Flora.' Woods's 'Tourist's Flora.'

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 987).

Luzula campestris. In dry meadows, barren fields, pastures, and sandy, heathy places on short turf; everywhere extremely common. Apse Castle, on the walks, &c.

Luzula multiflora. In damp, moory ground, turfy bogs, wet woods, thickets, and other moist or shady places; frequent. Between Ryde and the Priory. Wood by Little Smallbrook. About West Cowes. On the skirts of Lake and Blackpan Commons, in and about Apse Castle, and most other parts of the Isle of Wight, and doubtless equally common over the rest of the county. The var. β . *congesta*, with the clusters collected into a roundish, lobed head, is also frequent. Notwithstanding that some of our best botanists consider this plant a variety of the last, I cannot but be of opinion that Mr. Babington is right in deeming it, as did Smith, De Candolle and others, a good and very distinct species. The oblong, not globose, seeds, far greater size and height of the plant, and its different places of growth and general habit are all in favour of such a view of its nature. It has usually a very gray, and even hoary aspect, and flowers later than *L. campestris*. It is a pity that *L. nivea* should be retained on the list of British plants, if it be well ascertained to have been *planted* in the woods near Dunfermline; it is scarcely a species of western and sea-coast countries of Europe, nor does it range so far north as Scotland on the continent.

Alisma Plantago. In ponds, ditches, and slow streams, &c.; common everywhere. Herb quite inodorous.

Alisma ranunculoides. In ditches, drains and shallow pools. In several parts of the Isle of Wight, but by no means common. Abundant in marsh ditches at Easton, Freshwater Gate, and occasionally

in other parts of the parish, and near Yarmouth, but much more sparingly. In Lashmere Pool, at the foot of Bleak Down, if not now destroyed by draining. Old clay pits in Hampstead brick-field, near Yarmouth, also in a pool between Yarmouth and Ningwood Common, in a field between the road and Leigh Wood, and in some old clay pits near Cranmore farm, in the same vicinity. Very rare in East Medina. In one or two of the marsh ditches in Sandown Level, towards Alverston, in tolerable plenty, with *Polygonum minus*, Sept. 1849. A plant or two at most in a little pool in a rough pasture field just beyond Coppid Hall, going towards Firestone Copse. Pond on Stapler's Heath (near Newport), Mr. C. D. Snooke. Very frequent on the mainland of the county, at least in South Hants. In the bog at the town end of Titchfield Common, sparingly. Margin of Sowley Pond, near Lymington. Ringwood. Extremely common in West Hants, as about Christchurch and in swampy pools a little south of the Christchurch-Road Station. Margin of Fisher's Pond, between Bishop's Stoke and Twyford. "In the river (Avon) about Sopley, Hants," Pulteney, Cat. of Pls. of Dorset. !!! Droxford Forest, Rev. E. M. Sladen. The whole plant when bruised emits an odour like that of *Eryngium foetidum* or *Muscari racemosum*, but less powerful, and is probably in an inferior degree endowed with the antispasmodic properties of the former, which has obtained for it in the West Indies the name of Fit-weed.

Actinocarpus Damasonium. In shallow pools, pits and ditches, on a gravelly or clayey soil; very rare. Not found in the Isle of Wight. "It used, some years ago, to grow in a pool about two miles from Christchurch, on the Lyndhurst road," Mr. James Hussey (in litt.). The neighbourhood of Christchurch, watered by two fine streams, the Avon and the Stour, is rich in aquatic plants, the country being low and intersected by ditches, enclosing water-meadows that extend up to Ringwood and Fordingbridge. The *Actinocarpus* will probably be found in the eastern part of the county, as it occurs in several parts of Surrey, in Berks, and in Sussex; it is, in fact, an eastern and inland rather than a western and coast plant, and its occurrence near Christchurch is somewhat unexpected, and encourages the hope that the species may be found elsewhere in Hants. Little pools and plashes on gravelly commons are its most usual Surrey localities. Plant destitute of smell.

Sagittaria sagittifolia. In rivers, streams and ditches; not rare, but merely local, in Hants, and only known to me as inhabiting the west of the county, nor is it a native of the Isle of Wight. Frequent

and abundant in the Avon and Stour; in the former I observed it all along its course at Fordingbridge, Harbridge, Ringwood, near Avon Cottage, and elsewhere, and in the Stour at St. Leonard's Bridge, Ilford, and very commonly at Christchurch, as well as in ditches near that town, between it and Sopley, &c. At Redbridge and elsewhere between that place and Romsey, in the river and canal. A form with very narrow, quite linear-lobed leaves is frequent here. The Arrow-head no doubt grows in other parts of the county, but is certainly not generally dispersed over it, as all my correspondents are silent respecting its stations, and I suspect it shuns the chalk wherever that formation predominates. This very variable but beautiful aquatic has been split up into several false or book species; the common American state of the plant, however, has far larger and broader leaves than in any European variety I have met with in Britain or on the continent, and may possibly prove distinct from ours hereafter.

Butomus umbellatus. In ditches, ponds and other still waters; very rare in Hants. Discovered, July 11, 1842, in extremely small quantity, by the Rev. C. Pritchard, in one of the marsh ditches at Easton, Freshwater Gate, where it still grows in this, the only known station for it in the Isle of Wight !!! It is said to grow at Twyford, near Winchester, but thought to have been introduced there, as I have a great suspicion it has been at Freshwater, from the very limited quantity and its confinement to a single spot. Pulteney (Cat. of the rarer Pls. of Dorset.) says it occurs in the Stour, part of which river is in Hants, and I feel pretty certain of having gathered a leaf of this plant in a ditch a little way out of Christchurch, on the Ringwood road, last autumn. It is stated to grow in streams near Newbury in the anonymous catalogue of the plants of that neighbourhood occasionally referred to in these Notes,* which must therefore be very near our limits, and since it is mentioned as inhabiting every county contiguous to this, its absence from the mainland Hampshire flora is in the highest degree improbable. Since the foregoing remarks were penned, I have confirmed the existence of this beautiful plant at Christchurch, by finding it sparingly under the railing contiguous to the second or easternmost bridge over a branch of the Avon, in June last, and picking a specimen just out of the town, towards Sopley, in flower, June 29.

Triglochin maritimum. Very abundant in salt-marsh meadows, pastures, and on mud-flats along the coast. Meadows behind Ryde

* See p. 716 for the name of the compiler, and observations by the authoress.

Dover. Salt-flats about Yarmouth, &c. Equally common on the mainland.

Triglochin palustre. In wet meadows, pastures, and other marshy or boggy situations, but far less frequent than the last. Not very uncommon in the Isle of Wight, but from its slender habit, and growing generally amongst long grass and other herbage, often overlooked. In a meadow a little east of Langbridge, by Newchurch, where *Utricularia minor* grows, in plenty. In the meadow below Lower Knighton Mill, also in plenty. In the *Cyperus* meadow at Ape's Down. Moors between Bridge Court and Bow Bridge, near Godshill. Most profusely in a very boggy meadow a little above Newbridge, towards Calbourne Mill. In wet clay between Thorness Wood and the mouth of the Newtown river. Piece of wet, heathy ground close to Sheepwash farm, Freshwater, and by one of the marsh ditches at Easton, Sandown Level, and elsewhere occasionally. Plentiful on the banks of slipped clay along the shore between Whitecliff Bay and Bembridge, Mr. Thos. Meehan, jun. Near Newport, Mr. G. Kirkpatrick! Equally frequent, I presume, in mainland Hants. I have remarked it in a salt marsh near the Lymington River, but find no personal notice of it elsewhere amongst my memoranda. Warnford, Rev. E. M. Sladen. Andover, Mr. Wm. Whale. Readily distinguished from *T. maritima* by the suppression of just half the fructification; the rudiments of three of the cells of the combined carpels appearing like a hollow, tapering rib in the angles of the three remaining cells. The scent of both species is equally strong and odious, exactly like that of bugs. I see no great reason why the curious *Scheuchzeria palustris* should not be found on our Hampshire bogs and marshes, having already been detected as far south as Shropshire. As remarked when speaking of *Cypripedium*, at page 917, this and many other plants, as *Pyrola*, *Trientalis*, &c., though found only in or towards the northern part of the kingdom in Britain, descend on the continent into latitudes considerably lower even than our own, proving that they are not essentially very northern species, although evincing a boreal tendency in their distribution with us. The more recent researches of botanists have greatly extended the southern limits of *Linnæa borealis*, *Convallaria verticillata*, *Listera cordata*, *Habenaria albida*, *Saxifraga Hirculus*, and *Campanula latifolia*,—species known originally in Scotland or the north of England only, but some of which are now ascertained to inhabit the midland and even the southern counties of England, in exact accordance with

the law of indefinite or irregular distribution of plants towards their equatorial boundaries adverted to at p. 365 of this volume.

The name for the order to which the present genus belongs, *Juncaginaceæ*, is injudiciously chosen, as liable to be confounded with *Juncaceæ*. I would propose to substitute *Triglochinaceæ*, as being at once unequivocal and identical, seeing that *Juncago* was but an old word for *Triglochin*, and used for it generically by Tournefort and others until supplanted by the latter.

Typha latifolia. In ponds, ditches, pits, sides of rivers, and other marshy places; not unfrequent over the county and Isle of Wight. Scarce about Ryde; in a little pond near Beaper farm, and sparingly in the brook between St. John's and Little Smallbrook farm. By the Medina at Shide Bridge, Newport, abundantly. Marsh below Carisbrook Castle. Marsh ditches at Gurnet Bay, with the following species. Very large and plentiful in a pond by Kingston Copse. In the stream (East Yar) both above and below Horringford Bridge. Near the western arm of the Newtown River, with the next. By the great pond near the church in the grounds of Gatcombe House, and in the upper pond at Knighton House, abundantly. Little pool between Stapler's Heath and the farm. In clay pits of Squires's brick-field, at Ningwood. About the Medina and Yar, in plenty, Mr. W. D. Snooke in Fl. Vect. !!! In a little pool under the cliff at Foreland, Dr. T. Bell Salter. Common, I believe, in most parts of mainland Hants. Observed in one or two places in Hayling Island, Portsea Island, along with the next. Profusely in the Itchen River at King's Worthy, near Winton. Langston, near Havant, and generally dispersed. Cams, near the shore; Fontley Iron-mills (near Fareham), Mr. W. L. Notcutt. The green leaves are collected, and after drying in the sun are used in this county instead of bulrushes, for mats, chair-bottoms and basket-work, under the name of flags.

Typha angustifolia. In similar places with the last, and rather the more common of the two with us, in the Isle of Wight at least, especially in old clay pits. In the marsh-meadow ditches, Gurnet Bay, plentiful, but rarely, I believe, flowering there. Almost filling a pool surrounded by woods near Cockleton farm, W. Cowes, nearly eight feet high and flowering abundantly. Little pool at Pallance Gate, on the north side of Parkhurst Forest, and flowering freely. Pond between Wootton River and King's Quay, along with *T. latifolia*. In a wet wood near Alverstun, called Bordwood or Borthwick Lynch. Pool between Great Thorness and Elmsworth farms, with

Myriophyllum alterniflorum. Pool close to the rectory at Shalfleet. Extremely common in pools and watery pits on the heathy ground about the western side of the Newtown River. I find it on slipped land below the cliffs at Luccombe, but, as will be seen from the foregoing stations, this species is far more frequent in West than in East Medina. Var. β . Leaves extremely narrow. In vast abundance, and flowering freely, in some old clay-pits in a rough, heathy waste a little east of Cranmore farm, near Yarmouth and adjoining Ningwood Common, as also on another piece of heathy ground near the western arm of the Newtown River, along with *T. latifolia*. Abundant, but not freely flowering, in the clay-pits of the brick-field at Lower Hampstead, near Yarmouth. This variety differs in no respect from the usual state of the species, excepting in the excessive narrowness of the leaves, which are scarcely one-third of an inch wide. Frequent, probably, over the rest of the county. Abundant in a pool on Hayling Island. Covers acres in the shallows of Sowley Pond exclusively. Besides the more universal names of Cat's-tail, Reed-mace, and sometimes (but erroneously) Bulrush, by which this genus is known, the pistillate flower-spikes are called in this island Black-puddings, Blackamoors, Black-heads and Bacco-bolts, from their likeness to rolls of tobacco, and remoter resemblance to the other elegant articles just enumerated. The heads of *T. latifolia* are employed, it is said,* by the velvet weavers of Spitalfields for cleaning their work, and are also sold to the poor as a cheap but efficient hat-brush. I have heard of their being used here occasionally for stuffing mattresses, but the property which the pappus possesses of felting, and its want of elasticity, must make it a very unfit substitute for feathers.

There seem good grounds for believing that *T. minor* will ere long be confirmed to the English flora. In Hall's 'Flora of Liverpool' it is stated that there are specimens of this plant in the herbarium at the Botanic Garden of that town, gathered in 1801, from a large marl pit north of Little Crosby. I have myself a distinct recollection of having seen examples some years ago, collected, I believe, in Kent, and sent to the late Mr. David Don, in whose possession I feel pretty certain they were when I saw them, which must have been at the Linnean Society.† The species is extremely local in Europe, but

* Loudon's Mag. of Nat. Hist. vi. p. 367.

† The Rev. G. E. Smith says that *T. minor* grows with *T. latifolia* in a dyke at West Hythe, Cat. of Pls. of S. Kent, p. 60. If there be no misprint here of *T. minor* for *T. angustifolia*, this would seem to confirm the reports and accounts of the occurrence of the former in England, as given above.

geographical reasons are not greatly opposed to its occurrence in the south of England. Parkinson gives three species as native to England, and both his description and very rough figure of his *Typha minima*, Least Reede-mace (*Theatra. Bot.* p. 1204, furthest fig. on the right), leave little doubt of the true plant being the one intended. Gerarde also speaks of having found a smaller kind of Cat's-tail in the Isle of Shephy, but it may have been only *T. angustifolia*, as no figure or description accompanies the notice. *T. minor* would seem to flower at least two months earlier than the other species, namely, in April and May.

Sparganium ramosum. In ditches, pools, slow rivers and streams; very common throughout Hants. Abundant in Sandown Level, Gurnet Bay, Freshwater Gate, &c. Of immense size in a pond near Freshwater farm, four feet high, with very broad leaves. Lowermost stalked head of flowers usually in the axil of the undermost leaf.

Sparganium simplex. In ditches, &c., with the last, but much less frequent. In several ditches on Sandown marshes, and frequent in ditches between Brading and St. Helen's. Abundant in Lashmere Pond, at the foot of Bleak Down; possibly now destroyed or made much rarer by the late drainage. Not uncommon in mainland Hants, as about Christchurch, Romsey, Winchester, &c. Near Place House; Side of Titchfield River, Mr. W. L. Notcutt. Warnford, Rev. E. M. Sladen. Always much, and often many times smaller than the last, and of a paler green. As Dr. Salter has remarked to me, the lowermost stalked head of flowers has its peduncle arising from the main stem, springing considerably above and not from the axil of the undermost leaf, but this is not invariably the case.

Sparganium natans. In slow streams, rivers, ponds and pits; plentiful, I believe, in several parts of the Isle of Wight, but very rarely flowering, and therefore not identified with this species in that condition with absolute certainty. Abundant in the Medina at Shide and Blackwater, and in the East Yar above Sandown Level, towards Alverston, in various places; very profusely in the stream above Alverston Mill, but never, I think, flowering there or in any of the running waters of the island, however slow the current may be. I found it in considerable plenty, and flowering freely, August 20, 1840, in some little pools (old clay-pits), called, as well as I could catch the name, Appey Pools, on a small common a little to the east of Cranmore farm, near Ningwood, and which are nearly filled with *Typha angustifolia*. I have not seen the inflorescence in any other spot in the island or on the mainland of Hants, where I believe to have

remarked the sterile form in the swift streams at Winchester, Bishop's Stoke, and most of the larger rivers and streams throughout the county, in great plenty.

Acorus Calamus. In ponds, ditches, and by river sides; very rare? Not found in the Isle of Wight. Winnal water-meadows, by Winchester, Dr. A. D. White !!! I find it in tolerable quantity along the banks of the river, beginning about a quarter of a mile above Dean-gate Mill, and continuing at intervals for perhaps half a mile up the stream, on both sides, but flowering very sparingly. Occurs, in all probability, in various parts of the county, but is perhaps overlooked for *Sparganium ramosum*, the leaves of which it greatly resembles, but may be distinguished at some distance from them by its remarkably brighter and lighter green, and by the wavy appearance of the ensiform leaves and scapes, that look as if crumpled into plaits or puckers along one of their margins, which is very seldom seen in the *Sparganium*, and then only accidentally. But the fine fragrance of the whole plant when bruised or broken, like that of fresh orange-peel, is the surest test to know it by when not in flower, a state it is seldom seen in, but sparingly, as at the station just given. Pulteney (Cat. of the rarer Pls. of Dorset.) says it grows in two or three places in the Stour between Blandford and Sturminster Newton, and it would probably reward a search along the Hampshire part of that river and its beautiful rival, the Avon, which both flow through fine water-meadows and are richly adorned along their banks with aquatic plants. Morison (Hist. Plant. iii. p. 246) says it grows about Headley, a village near the Surrey border, a few miles north of Liphook.

I have a lurking suspicion that the Sweet Flag may not be aboriginal to Britain. Neither Gerard nor Parkinson speak of it as known to them in a wild state in their time, nor is it once alluded to by Turner in his 'Herbal.' Yet had it been as common in the days of these writers as it is, or was till lately, about Norwich and other chief towns of England, it is difficult to imagine that a plant then much esteemed medicinally, and the roots of which were an article of importation from the Levant, could have passed unobserved by the earlier herbalists and simplers.

Arum maculatum. In woods, thickets, groves, on hedge-banks, grassy borders of fields, often also in meadows and pastures; in profuse abundance throughout the Isle of Wight, and not less so in most, if not all, parts of the county. Our hedge-banks in the spring and early summer are covered with the leaves, which by the middle of June have quite disappeared, and as perhaps not one plant in twenty

flowers and seeds, the species would seem to anybody who had not witnessed its superabundance in spring, to be comparatively an unfrequent one. Here the *Arum* is the earliest and surest harbinger of that welcome season, its leaves never failing, except in unusually severe weather, to emerge from the ground during the first week in February,* and to attain their full dimensions in March, when they are often seared by the cutting east winds on exposed hedge-banks. I have occasionally found a few specimens in flower in that month in the Undercliff, although its proper season of inflorescence in this county is from the middle of April till the beginning of June. Var. β . Leaves without spots; almost as common as the spotted state. Var. γ . Leaves veined with greenish white; about Bonchurch and Steephill, not uncommonly. The varieties with spotted and plain leaves are almost equally common with us, and grow intermixed; yet Reichenbach, with his usual mania for "splitting," makes two species of them, *A. vulgare* and *A. maculatum*, and remarks, after giving the supposed characters of each, "*Utramque jam vivam observo, in eodem loco A. maculatum per octo dies precocius est immaculato.*"† In this county I can perceive no difference in the time of flowering, and the leaves of both are alike variable in size and shape. The spotted form would appear to be rarer towards the north, where, as in Sweden and Denmark, this variety is nearly an entire stranger. Specimens occur with us occasionally in which the leaves are broadly veined with greenish white, as in the foreign *A. italicum*, by many botanists regarded as a variety merely of our *A. maculatum*. The former, with which I have been long familiar in the south of Europe, is a much larger plant than ours, the leaves more perfectly hastate, with very divaricate lobes, that stand out at nearly right angles to the midrib, which, as well as the lateral veins, are for the most part strongly marked above with white; the leaves, too, are more uniform in shape, and do not exhibit the same great diversity of outline as in *A. maculatum*, besides which they are habitually evolved at the close of the year, and remain green through the winter, which is rarely the case with the other, and then only, as it were, accidentally in warm, sheltered situations, by a sort of natural forcing. *A. italicum* is the prevailing species over the south and south-west of Europe, where *A. maculatum* is seldom seen except in elevated places. I remarked it, on a journey from Orleans to Bor-

* I have even remarked them springing up at the close of autumn at Bonchurch, where in very sheltered spots, as near the old church, they are persistent the winter through, as in *Arum italicum*.

† Fl. Germ. Excurs. i. adden. et corrig. p. 138.

deaux, to make its first appearance on approaching Potiers, after which it became common, and about Bordeaux is everywhere to be met with, ranging all along the western maritime departments of France into Brittany as far as 48° , or perhaps higher.* Throughout Italy no plant is more abundant than this Arum,† even in the most open, sunny exposures, not being the shade and moisture-loving plant that *A. maculatum* is, nor does it, like that, inhabit the more interior countries of the European continent under its limitrophe parallels, as Switzerland, Hungary, Austria proper, &c., where *A. maculatum* is frequent. Yet I must own to having observed states of *A. italicum* that seemed to connect it pretty closely with *A. maculatum*, which in its turn often approaches its southern congener in size and outline, and, as we have seen, in having the leaves occasionally marbled with white. It is well known that in Portland Island a large quantity of a beautifully white and highly nutritive farina is prepared from the tubers of *A. maculatum*, which chiefly finds a market in London, for the use of invalids, under the name of Portland Sago. Were the demand general, the Isle of Wight could alone furnish an inexhaustable supply of this valuable production, now in a great measure neglected, because not conventionally adopted as an article of consumption by all classes. In ruder states of society, mankind eagerly seek out and appropriate those spontaneous gifts of Nature which in more civilized communities are overlooked or contemned. The savage starves not, for the field and the forest are his granary on which he relies for unbought and untoiling subsistence; the poor of our land perish if the hand of bounty be withdrawn, for they must be fed with the purchased food which labour prepares for the rich as well as the needy. It is probable the young, fresh leaves of our Wake-robin might, when boiled, which would dissipate their acrimony, furnish an excellent spring Kale, as do those of *Caladium esculentum* and other tropical Araceæ in the West Indies. As an object of cultivation, *A. italicum*, from its larger size and therefore greater yield, would doubtless be preferable to our native species.

Lemna trisulca. In clear, stagnant water of pools and ditches. Ditches in Sandown Level, abundantly; very profusely in those immediately around the Fort. "Ditches in the marsh at Easton (Fresh-

* I should never be surprized at hearing of its discovery in Devon and Cornwall.

† At Rome, for instance, I remarked it on every bit of waste soil within the walls, where, from its abundance and luxuriant growth, it forms a most picturesque adjunct to the natural foreground, which the artist gladly transfers to his canvas.

water Gate) and about Sandown, in abundance," Mr. W. D. Snooke in Fl. Vect. !!!

Lemna minor. In almost every ditch, pool or splash of stagnant water, whether clear or otherwise, throughout the county and Isle of Wight.

Lemna polyrhiza. In clear, stagnant water of pools and ditches, &c. Abundant in marsh-ditches between Yarbridge and Yaverland, as well as in other parts of Sandown Level. Ditches in Easton Marsh, Freshwater Gate. Near Petersfield, and common probably throughout the county.

Lemna gibba. In standing water; rare? In a small pond near Yafford farm, Isle of Wight, with *L. minor*, Oct. 1845. I found it some years ago in a ditch near Lymington, with *Hydrodictyon utriculatum*. Mantling a pool close to Chapel farm, Oakhanger, near Selborne, Sept. 1848. Probably not uncommon in the county.

The following list of Hampshire Potamogetons falls, I am convinced, considerably short of the actual number existing in the county. In the Isle of Wight their amount, like that of other aquatic plants, is extremely limited, and the opportunities have hitherto been few of extending my acquaintance with the species of the mainland.

Potamogeton natans. In ponds, ditches and slow streams; frequent.

Potamogeton oblongus. In wet ditches, on bogs, and marshy spots or splashes on heaths and commons; frequent, I think, in the Isle of Wight, and perhaps equally so over the whole county. On Lake and Blackpan Commons. Bog at Cockleton, near W. Cowes, &c.

Potamogeton plantagineus. In similar places with the last; rare? It has not occurred to me in the Isle of Wight. Titchfield Common, in profusion, Mr. W. L. Notcutt!

Potamogeton lucens. In ponds and ditches; probably common throughout the county. Marsh-ditches at Sandown. Pond at Holy Water, Wolmer Forest.

Potamogeton perfoliatus. Ponds, lakes, streams, &c.; rare? Not found in the Isle of Wight, nor have I myself yet seen Hampshire specimens. "A very common species in Surrey and the neighbouring parts of Hants," Mr. W. W. Reeves (in litt. 1848).

Potamogeton crispus. In ditches, pools, &c.; common probably throughout the county. Abundant in the marsh-ditches at Easton, Freshwater Gate, and in those at Sandown. Pond at the brick-kiln, Bembridge, Dr. T. Bell Salter.

Potamogeton pusillus. In ditches and other stagnant water, either

fresh or brackish ; most likely common along the coast. In marsh-meadow ditches behind Ryde Dover, abundantly, and in Brading marshes, in profusion. Marsh-ditches between Brading and St. Helen's, Mr. Fred. Townsend !!! Ditches in the marsh near Easton, Mr. W. D. Snooke in Fl. Vect. !!!

Potamogeton zosteraceus, Bab. Man. (not of Fries, according to Mr. Borrer). In the Avon, in the meadow next above the bridge at Christchurch, where the river is quite full of it, Mr. Borrer !

Potamogeton pectinatus. In ditches, pools, &c., both fresh and salt. Ditches around Sandown Fort, 1842, and in those on the marshes at Brading, 1844. In a small pool on the marshes at Barnfield, near Yarmouth, July, 1844. Marsh-ditches at Easton (Freshwater Gate), Mr. W. D. Snooke in Fl. Vect., where it occurs in great profusion, and seems to be the large-fruited salt-water variety of the plant, the *P. marinus* of Linn., &c. !!! Ditch at Hill Head (near Fareham), Mr. W. L. Notcutt !, and most likely common over the county, principally, perhaps, on the coast.

Potamogeton densus. In ditches, pools, rivers and slow streams (always in fresh water ?) ; common, no doubt, in the county. Marsh-ditches at Sandown, and abundantly in those at Easton, Freshwater Gate. Cattisfield ; pond at Uplands ; Hill Head ; (all near Fareham) : Mr. W. L. Notcutt. *Anacharis Alsinastrum*, or at least the Hampshire (Leigh Park) plant included under that name, but which a recent examination has convinced me does not differ in any essential particular from *Udora verticillata* of North America, when growing immersed in its native waters, bears no slight resemblance to small states of this *Potamogeton*, which may possibly be the main cause of the former existing so long unobserved in this country.

Ruppia maritima. In salt-water ditches and pools ; frequent. Ditches behind Ryde Dover. The ditches between Springfield and Old Fort are almost filled with this and *Zanichellia*. In salt-ditches about Yarmouth and Freshwater, plentifully. Common, I think, all along the coast of Hants about Lymington, Portsmouth, &c. I am not just now prepared to say to which of the two species or varieties (*R. maritima* or *R. rostellata*, given as British in the 'Manual') our common Hants plant should be referred, but I believe rather to the latter. It is probable, however, that we may possess both.

Zanichellia palustris. In ponds and ditches, both of fresh and salt water ; not uncommon in the Isle of Wight, and I conceive probably as frequent on the mainland of the county. Ditches behind Ryde Dover, plentifully, and profusely in those between Springfield

and Old Ford, to the eastward of Ryde. In a pool on a moory pasture near Mottiston Mill, in plenty. Ditch at Hill Head (near Fareham), Mr. W. L. Notcutt.

Zostera marina. In shallows, creeks and inlets of the sea, the mouths of tide rivers, and salt pools; common. Profusely in the shallow water of the shore at Ryde, about the pier, &c., where it is thrown up all along the coast in great quantities after heavy gales. At the mouths of the Yar and Medina, and plentiful in the pools of salt or brackish water on the marshes between Yarmouth and Freshwater. Profusely in the Southampton River, just below the town, retarding the progress of wherries and other small craft through the water, and clogging the oars in rowing. Plentiful in most other places along the coast of Hants.

Zostera nana. In similar places with the last, and perhaps not uncommon. At Wootton Bridge, in small quantity, just by the bridge itself, 1848, and found abundantly the same year by Dr. T. Bell Salter on the black mud of Brading Harbour, a little above the mill!! I have not yet seen flowering specimens, but those found by Dr. Salter and myself perfectly agree in size and character of the leaves with the beautiful figure in E. B. Suppl. t. 2931, and excellent accompanying description, as well as with the scarcely less beautiful icon in Fl. Danica, xii. t. 2041 (*Z. Notki*). Found in Portsea Island, at Gatham Haven, Doody in Ray's Syn. 3rd edit. p. 53. I think from the description here given, there can be little doubt of Doody's plant (No. 4, *Potamogeton marinum*, &c.) being our present species. No. 5 (same page), or Doody's *Alga angustifolia vitrariorum*, found by him with the other in the same station, I suppose may be the *Zostera angustifolia* of Babington's 'Manual' (is that identical with the *Z. marina*, β . *angustifolia*, of Fl. Dan. ix. t. 1501?), of which I know nothing, and from the very short specific character should fear was hardly distinct from the commoner broad-leaved *Z. marina*. Mr. Babington attributes *broad* leaves to his adopted species, *Z. angustifolia*, perhaps a misprint for *narrow*, and if it be the same with the variety depicted in Fl. Dan. t. 1501, they are quite as linear as in *Z. nana*, and little, if at all, longer than they are drawn and described in that plant in the supplement to E. B. How far *Z. nana* and *Z. angustifolia* are entitled to rank as good species I will not undertake to say with my present very imperfect acquaintance with the one, and utter ignorance of the other excepting through figures.

Cyperus longus. In damp or wet meadows and along the marshy sides of rivulets; very rare, and as yet not known to inhabit the main-

land of the county. First found by myself in considerable plenty in a low meadow at Ape's Down, on the road from Newport to Yarmouth, about two miles west of Carisbrooke, Aug. 10, 1839. Meadow below Carisbrooke Castle, on the west side, but in extremely small quantity, Oct. 1839. Not now to be found there. In profuse abundance in a low marshy meadow, called Castle Mead, at the extremest south point of the island, Sept. 10, 1839. For a further account of these stations see Phytol. i. p. 131. I question much if the *Cyperus* is now to be found at the Ape's-Down station, at least in any quantity, as the meadow was about to be drained a few years back, and flowering specimens were not often procurable latterly when the grass began to be regularly mown for hay; still I have not visited the spot for some seasons past, and speak on conjecture alone. But at Castle Mead this most beautiful plant may be annually collected in any quantity, which was hardly the case till within these last three or four years, as the former occupier of the land invariably cut it down as fodder with the other marsh herbage about the time when it was in perfection. The Castle Mead now forms part of the property of my friend George Kirkpatrick, Esq., of Windcliff, Niton, who not only allows the *Cyperus* to grow unmolested by the scythe, but in his zeal for its preservation has fenced in that part of the meadow, so that by his care and liberality a never-failing supply of specimens is effectually secured to all who wish to procure them at the proper season, which is from about the middle of August to the end of September or beginning of October, not July, as most of our books give for its flowering time. The plants here grow as thick and close together as reeds, and with their bright green, polished stems and leaves, long, gracefully curved involucral bracts, and ample, elegantly drooping panicles, with digitately spreading spikelets, of the richest chestnut and green, call to mind the idea of some tropical inmate of the stoves and conservatories.* Many of the individuals exceed four feet in height, and one amongst others of equal elevation, that I measured in October last, was four feet eight inches from the ground to the base of the panicle, which latter might be about a foot higher; the largest of the three very unequal involucral leaves being commonly nearly two feet in length. I have hitherto uniformly failed in procuring ripe seed of *Cyperus longus* in this station; the locality is probably too wet, and the

* If I mistake not, *C. longus* is the largest and handsomest European species of its genus, from which the much taller *Papyrus* of the ancients (*P. antiquorum*), found in Calabria, is now removed.

plant increases too much by the creeping root to perfect seed ; in the drier and warmer soil and air of a garden the fruit would perhaps come to maturity, could the species be brought to thrive in such a situation, which with me it refused to do. Every part of this plant emits a faint but sweet and agreeable odour, altogether peculiar to itself, and which, though it continues to be long exhaled, is only perceptible under certain circumstances by momentary impressions, as on entering a close room or opening a box in which a number of specimens are contained.* I know of nothing to which this scent can be likened ; perhaps that of cedar comes nearest to it, but the analogy, if any, is very remote. The root of the wild plant differs much in degree of aroma according to the soil ; with us here it has merely a faint, sweetish odour like the rest of the plant, and a slightly warm, bitterish taste, hardly deserving of being called aromatic, but probably acquiring more of that character when dried. Perhaps, too, in the warmer and less humid soil of a garden these qualities are alone developed in the degree attributed to the species. Brotero, however, remarks that the root is often inodorous as well as sweet-scented in Portugal, and Mr. G. E. Smith describes his Kentish examples as possessing the peculiar fragrance of the species in perfection. When planted in water I find the herbage developed at the expense of the panicle, which then becomes extremely depauperated, the spikelets assume a pale green colour, and the beauty of the species is in a great measure destroyed. From the name, English Galingale, given it by the old herbalists, I think it likely to have been more frequent formerly in the wild state before the country was so much drained and enclosed as it is in our time, and I am convinced that were attention specially directed to the search, *Cyperus longus* would be found in many more places than it is known to grow in at present, and that it would finally be ascertained to inhabit every county along the south coast from Kent to Cornwall, increasing in frequency westward. It was this conviction, drawn from geographical considerations, that mainly led to its discovery by myself in the Isle of Wight ; the probability of its occurrence in this part of England seemed to me so strong that I kept it con-

* I remarked it to be very powerful when treading amongst the specimens at Castle Mead, yet it is not given out by breaking or crushing the plant, like many other scents, but is rather a subtle emanation from the whole surface, as in *Malva moschata*. The figure of this species in E. B. is very indifferent, and conveys no idea of the graceful slenderness and rich colouring of the spikelets ; the panicle, too, is drawn as if erect, and is so described in our books, whereas, in fact, it is always lax, and when large even drooping.

stantly in view during my herborizing excursions, and every field botanist knows how greatly the detection of a rare or local plant is facilitated when the mind is bent on its discovery from well-grounded hopes of success in the attempt. I have little doubt the *Cyperus longus* grows on the mainland of Hants; it was formerly found in Purbeck, where it has been more recently detected by Mr. J. Hussey at Ulwell, a hamlet about a mile and a half from Swanage. In Wilts it occurs in plenty at Boyton, not far from the residence of the late A. B. Lambert, Esq., a remarkably inland station; and I think it has of late years been found in Cornwall by Miss Warren, in which county and in Devonshire I should expect it to be more frequent than in any others. Flowering very late, when other Glumaceæ (both Cyperaceæ and Gramina) are quite past for the season, and the panicle being often extremely reduced or depauperated, the species easily eludes observation, or is passed by at that or an earlier period, before the inflorescence is developed, for some *Carex*, especially *C. vulpina*, to the leaves of which those of the *Cyperus* bear a very close resemblance. But its presence on any spot may at once be ascertained, even when so masked, by the fragrance and aroma of the black, creeping rhizoma, which, however weak, is always sufficiently perceptible to distinguish it from every species of *Carex* resembling it.

N.B.—*Cyperus fuscus* will, I feel confident, be eventually found to inhabit this county, and probably all the adjoining ones. It should be looked for in August and September, on wet, sandy ground on the grassy margins of pools and ditches, &c. Strange it is, that even this humble annual, although the most northerly species of its genus known, and a native of every country of Europe as far as Denmark and the south of Sweden (lat. 55—56), and from the westernmost shores of our continent across its entire breadth into Siberia, should nevertheless have been unable to escape that suspicion of foreign introduction which is endemic amongst the botanists of Britain, a class complaint, terribly infectious in our atmosphere, it would seem, but very little known in other countries. Accordingly, we find *Cyperus fuscus* in the fourth and fifth editions of the 'British Flora' marked with the asterisk, as one of those plants "which have become naturalized through the agency of man;" and I remember, before its discovery by Mr. Salmon in a second and distant British station, having been obliged to contend strongly for its indigenous origin at Chelsea against a most excellent, learned and amiable naturalist, who insisted that it could have no just title to be considered British, and deemed its introduction due to human agency. I even ventured to predict its

speedy detection in other parts of the kingdom, and am now of opinion that it will ultimately prove more frequent and widely dispersed over the land than *C. longus*, because this last is a more southern and far less hardy species than the other, and is scarcely known on the continent of Europe under British parallels, excepting in one or two places in Belgium,* whilst *C. fuscus*, as we have before remarked, has a very wide range of distribution, both in latitude and longitude. It is worthy of notice, that even the discoverer of *C. fuscus* near Godalming appears unable to divest himself of some of those misgivings which seem constitutional to British botanists, since in his announcement of the fact of its occurrence at Peat pond he says: "Has Mr. Mill or any other gentleman carried out the suggestion in the article referred to (dissemination of seeds artificially), by introducing the plant here?" It is not twenty years since *Polygonum dumetorum* was first observed in this kingdom, and now there are few of the southern counties of England in which it remains undiscovered; yet did this conspicuous plant share the fate of most other novelties to our vegetation in being stigmatized with the brand of an interloper in the fourth edition of the 'British Flora.' I have visited both the English stations for *C. fuscus*, and am astonished how any one could imagine it likely that the plant was introduced to either. For my own part, I am prepared to hear *C. fuscus* announced as found in Yorkshire, and think *C. longus* will probably be found to range westward into the south and south-west of Ireland. *Cyperus flavescens*, the only other species of the genus that can reasonably be looked for in Britain, may very possibly be found hereafter with *C. fuscus*, its common associate on the continent.

Schoenus nigricans. On turfy, moory bogs; very rare. Townhill Common (near Southampton), the late Mr. N. J. Winch in New Bot. Guide. Bog on the east side of Gomer Pond (near Gosport), but confined to one spot, Mr. Borrer. I have not yet seen Hampshire specimens of this plant, which has not occurred to me in the Isle of Wight, but I suspect it will be found to be not very uncommon on our forest bogs in the south-west of the county, and elsewhere. Dr. Salter finds it in plenty in some places near Poole.

Cladium Mariscus. In deep turfy or peaty bogs, and fenny places; extremely rare in the Isle of Wight. In the marsh at Easton, Freshwater Gate, Mr. J. S. Mill !!! I am indebted to the kindness of Mr. Mill for the only flowering specimens I possess, from the above and

* At Burtscheid, near Aix la Chapelle, &c.

sole station for this fine plant in the island, where it was tolerably plentiful a few years back in one or two of the further meadows, but has now become, I think, nearly extinct, partly, perhaps, through draining, and because, being cut with the coarse herbage of the meadow for hay, it has not, since Mr. Mill gathered it in that state, been allowed to flower and seed, were it so disposed.* Very fine and profusely plentiful on a tract of boggy ground at Gower Pond, near Gosport, as noticed there by Mr. Borrer!!!† Portsea, Rev. G. E. Smith in New Bot. Guide, but I do not know in what part of the vicinity of that suburb of Portsmouth my excellent friend finds it. In great plenty in half-boggy, half-moory ground on the east side of Sowley Pond, near Lymington, in ripe fruit, Sept. 26, 1849, but not flowering in any abundance on that station. This, the tallest and stoutest of our native Cyperaceæ, grows, doubtless, in other parts of the county. The excessively stiff, glaucous and deeply channelled leaves are formidably armed along the edges and keel with hard cartilaginous serratures, with incurved points, capable of wounding severely if incautiously handled; in this respect, and in the structure of the bony fruit, evincing its affinity to *Scleria*, of which genus the present is the nearest European representative.

Rhynchospora alba. On spongy, turfy bogs, wet moors, and marshy spots on heaths and commons; not very frequent, though I believe generally dispersed over the county. Decidedly rare in the Isle of Wight. On the marshy skirts of Lake or rather of Blackpan Common, in one or two spots abundantly. I remarked it on the moors at Bournemouth, and I think also on Wolmer Forest; at the former place Mr. Borrer found it growing with *Malaxis paludosa*, and of unusual height, which served me as one mark to look for the *Malaxis*, but *that* I could not fall in with last year in Mr. B.'s station. Short Heath (near Selborne), Dr. T. Bell Salter. Titchfield Common and Botany Bay (near Southton), Mr. W. L. Notcutt. Common about Southampton, Mr. Winch in New Bot. Guide, and I have no doubt in a great many other localities. The variety with brownish spikelets (*β. sordida* of Babington's 'Manual') I do not remember to have met

* The Rev. G. E. Smith has remarked to me, that for the full development of the inflorescence of *Cladium Mariscus*, the absolute contact of water with the roots seems necessary, an opinion my own experience confirms. The soil of these meadows has become too dry apparently for some years past to sustain any longer the *Cladium* in healthy vegetation; hence, doubtless, the more efficient cause of its rapid diminution in quantity and stature since Mr. Mill first detected it at Freshwater.

† Gomer Pond.

with in Hants. This latter form runs some risk of being mistaken for the following.

Rhynchospora fusca. In similar places with the last, but much more rarely, and probably confined to the western side of the county. Not seen in the Isle of Wight. Bog by, and to the west of, the railway at Christchurch station, on the north side of the railway, where the stream passes under it; and in the bogs near the railway east of the station, Mr. Borrer !!! Plentifully in a bog between Southampton and Lymington, Petiver, apud Ray's Syn. p. 427. A rare and interesting species, well characteristic of the transition so often before noticed in our county flora from the eastern to the western type.

W. A. BROMFIELD.

Eastmunt, Ryde, Isle of Wight.

(To be continued).

Botanical Society of London.

Friday, August 2, 1850. John Reynolds, Esq., Treasurer, in the chair.

A paper was read by Dr. Arthur Hassall "On the Adulteration of Coffee." The author commenced by observing that the inquiries, the results of which he was about to detail, originated in a remark made in the House of Commons during the late debate on chicory, to the effect that no means had been yet discovered by which the adulteration of coffee with that substance could be determined. The recollection of the fact, that in vegetable charcoal the component parts of the several tissues may be detected by the microscope, led Dr. Hassall to infer that by the same means the less completely charred cells and vessels, &c., forming the tissues of those substances employed in the adulteration of coffee, might likewise be discovered; an expectation fully realized. In this way it was ascertained that the substances most frequently used in the adulteration of coffee are chicory, roasted wheat, colouring matter, and occasionally beans and potato-flour. The structure of the coffee-berry, and of the several productions just named, were then minutely described; and it was shown that chicory might at all

times be distinguished from coffee with the greatest ease, by the size and ready separation of the cells, as well as by the presence of bundles of cells of a dotted or interrupted spiral kind. The substance so generally employed to deepen the colour of coffee Dr. Hassall found to consist, in those instances in which he had examined it, of burnt sugar, and he referred to the fact that the rich brown hue of coffee is not peculiar to a decoction of that berry, but that almost all vegetable substances when charred yield a somewhat similar colour. The author then proceeded to detail the results of the thirty-four examinations of coffee, of all prices; from these it appeared that the whole of the coffee, with two exceptions only, was adulterated; that chicory was present in thirty-one instances, roasted wheat in twelve, colouring matter in twenty-two, beans and potato-flour in one only; that in ten cases the adulteration consisted of a single article, in twelve of two, and in ten of three substances; and that in many instances the quantity of coffee present was very small, and in others not more than a fifth, fourth, third, half, and so on. Contrasting coffee and chicory, it was observed, that while the coffee-berry contains a large quantity of essential oil, visible in small drops in cells, and upon which the fragrance and actual properties mainly depend, not a trace of any similar oil is to be found in the chicory root. The properties of coffee are those of a stimulent and nervine tonic, with an agreeable flavour and delicious smell, not one of which properties is possessed in any degree by the chicory root, it being rather aperient. Dr. Hassall regards chicory, therefore, as in every respect inferior to coffee, and observed that if its employment be deemed in any way desirable, it should be sold openly, and not, as at present, under the names of Ceylon, Berbice, Costa Rica, Mocha coffees, &c. The paper, which contained many other interesting details, was brought to a conclusion by one or two hints, addressed to coffee drinkers, namely, that coffee should be ground fine, in order to facilitate the liberation of the essential oil contained in the cells of the berry, and that an infusion and not a decoction of it should be made.—*G. E. D.*

Plants found in Devonshire and Cornwall, in addition to those contained in Jones's 'Flora Devoniensis,' and in Art. LII. of Part 1 of the 'Phytologist.' By ISAAH W. N. KEYS, Esq.

IF you can find a place for the accompanying list of plants, as an humble addendum to the Rev. W. S. Hore's interesting paper (Phytol. i. 160), the readers of the 'Phytologist' will be in possession of a tolerably complete list of the species which have been noticed in this neighbourhood since the publication of the 'Flora Devoniensis.' Some of the plants which I find omitted from that work must, I conceive, have been observed by the talented author, but accidentally escaped record; or, indeed, I may, from the variety of synonyms, have overlooked them.

Hordeum pratense, Huds. In a field adjoining Eldad Chapel, Plymouth. It has been noticed here for several years. I gathered specimens last summer.

Molinia cærulea, Mœench. Borders of Dartmoor (Tolckmoor), Mr. Bunker, July, 1850. Found before by Mr. C. Harper, somewhere near Shaugh Bridge.

Gastridium lendigerum, Gaud. Near Torpoint, Cornwall, Rev. W. S. Hore.

Luzula multiflora, Lej. Manadon Wood, near Plymouth. Specimens from this locality have been confirmed by Mr. T. Bentall, of Essex, who at the time they were submitted to his examination was in correspondence with Mr. Babington on the subject.

Polygonum Raii, Bab. Whitsand Bay, in the sand.

Melissa officinalis, L. Rame, Cornwall; doubtfully wild. This plant used to grow at Laira, near Plymouth, where it had the appearance of being indigenous. The South Devon Railway has obliterated this habitat.

Linaria supina, Desf. Catdown limestone-quarries, Plymouth. Very abundant this year on rubble cast out from the quarries; not confined to the ballast-heaps on which it was first noticed some years since. I collected 600 specimens the other day.

Linaria purpurea, Mill. On the walls of an estate called Trevollaul, near Saltash, Cornwall. It last year sprung up spontaneously on the garden-wall of a friend of mine, on the border of Millbrook creek, about three miles hence.

Orobanche amethystea, Thuil. Whitsand Bay, Cornwall. The

discovery of this plant by the Rev. W. S. Hore has before been recorded in this magazine.

Datura Stramonium, L. A troublesome weed in a garden at Woodside, Plymouth, W. T. Diment. I gathered one specimen last year on the mud deposits from the new government works at Moricetown, near Devonport. It might have found its way there with manure.

Myosotis repens, Don. Not uncommon in this neighbourhood.

Myosotis cæspitosa, Schultz ! Ditch in Chelson meadow, near Plymouth.

Pulmonaria officinalis, L. Manadon and Widly, near Plymouth. Questionably wild.

Polemonium cæruleum, L. This plant has grown freely for many years by the side of the Dartmoor railway, just before it enters upon the Laira embankment. Some cottages are at hand: *verbum sat*.

Sonchus asper, Hoffm. Occasionally met with about this neighbourhood.

Doronicum Pardalianches, L. Thicket at Widly, near Plymouth. It grows plentifully here, and seemingly wild; but in the same patch of ground are two or three other doubtful natives, which induces me to think that this plant has been introduced.

Pastinaca sativa, L. Catdown, Plymouth, and other places in the neighbourhood; not rare.

Callitriche verna, L. Common about Plymouth.

Callitriche pedunculata, De C. (*β. sessilis*?). Stagnant pools, Bickleigh Vale.

Medicago denticulata, Willd. Hoe, Plymouth.

Medicago sativa, L. Keyham, near Devonport. Tavistock Road, about two miles from Plymouth.

Hypericum linariifolium, Vahl. Morwell rocks, river Tamar.

Ononis antiquorum, L.? Wembury, Devon, Mr. F. H. Goulding.

Geranium pratense, L. Near Knackersknowle, Devon; but probably introduced.

Geranium pyrenaicum, L. Road-side between the third and fourth mile from Plymouth, on the Yealmyrton road, on slate. This plant was pointed out to me last summer. It appears truly wild.

Viola lactea, Sm. (*Viola lancifolia* of continental authors). Bickleigh Down, Devon, 1850. Messrs. C. C. Babington and H. C. Watson agree in attributing the above name to violets which I have sent them from this locality.

Reseda lutea, L. Ballast-heaps, Catdown quarries, Plymouth. As this plant is not met with elsewhere in this district, it perhaps scarcely deserves a place in this list, being undoubtedly an alien. It has, however, occupied its present habitat for the past six years under my own observation; how long before, I know not.

Koniga maritima, R. Br. On rocks near the sea, Plymouth and vicinity; frequent.

Diplotaxis muralis, De C. Catdown, Mutley. From the synonyms employed, this plant appears to be comprehended under *Sinapis tenuifolia* by the author of the 'Flora Devonensis.' It is, however, a distinct plant.

Helleborus fœtidus, L. Manadon, near Plymouth.

Ranunculus Lenormandi, Sch. Frequent in this district.

Appended are additional habitats for three or four of the plants named in Mr. Hore's list. Those to which an asterisk is prefixed rank therein as Cornish plants. Their appearance in this county as well is therefore the more worthy of note.

**Briza minor*, L. Catdown, Plymouth, 1850.

Tragopogon porrifolius, L. Grass-plot in front of Devonshire Terrace, Plymouth.

**Trifolium ornithopodioides*, L. Cann quarries, Bickleigh Vale, Miss Edmonds, 1849. It was collected this year by Mr. F. H. Goulding.

**Reseda fruticulosa*, L., was found at Hooe, near Plymouth, in 1844, by Mr. G. Bartlett. I have not heard of its having been met with since.

ISAIAH W. N. KEYS.

Plymouth, August 7, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 1020).

Eleocharis palustris. In wet meadows, ditches, sides of pools, and in other marshy or boggy places; abundantly throughout the county. In the wet meadow within the walls of Quarr Abbey. Abundant in Brading marshes, near the sluice, and various other parts of the island.

Eleocharis uniglumis has, I understand, been found by Mr. Woods in Dorsetshire, near the Hants boundary. Of this species, real or assumed as such, I know nothing, but judging from the very slight distinctions laid down in the 'Manual' for its discrimination from *E. palustris*, anticipate its re-union with that common and variable plant at no distant day. *

Eleocharis multicaulis. On turf bogs, and wet places on moors, heaths and commons; probably not very unfrequent. In several parts of the Isle of Wight, as on the marshy skirts of Lake and Blackpan Commons (the north side, adjoining Sandown Level), in considerable plenty. Most abundantly on the boggy south-eastern declivity of Bleak Down, facing Roudé. In a boggy pasture between Saynham and Dew's Place. Bog at Freshwater, Mr. Dawson Turner in Snooke's Fl. Vect. Bog at Blackpan, Dr. T. Bell Salter!

Eleocharis acicularis. On the shallow margins of pools, ditches and streams, and in damp, sandy spots on heaths, &c.; very rare? Not yet detected, to my knowledge, in the Isle of Wight. Along the muddy edges of Wall's Pond, Holy Water, on Wolmer Forest, abundantly, and still in pretty full flower, Aug. 29, 1849. Brockenhurst Bridge, 1843, Mr. Borrer (in litt.). I could not find it last summer (1849). Probably not uncommon in the county, as Mr. Borrer seems to hold it a frequent Sussex plant.

Scirpus maritimus. Abundant in salt-marsh pools and ditches, and on the muddy shores of tide rivers and inlets on every part of the coast, both of the Isle of Wight and mainland. Ditches behind Ryde Dover. In Brading, Sandown, Newtown and Freshwater marshes, &c., abundantly. Var. β . *monostachys*; spike solitary. Of this I found many specimens last year in a marsh ditch on Hayling Island,

with the usual many or cluster-spiked form, but this suppression of all the spikes but one seems rather a casual state or condition than a true variety of the species.

Scirpus sylvaticus. In damp woods, thickets, and along the shady margins of brooks, drains, ditches, &c. In various parts of the Isle of Wight, but almost entirely confined to East Medina, and more particularly there to the valley of the East Yar. In drains or ditches on Sandown Level in several places, but sparingly, becoming more frequent higher up the stream. In a marshy spot on the north-east side of Youngwood's Copse, near Newchurch, in great plenty. Abundant in a willow bed called, I believe, Quobb, on the borders of Sandown Marshes, a little east of Alverston; also in a willow thicket betwixt Messley farm and Langbridge, and in the withy bed above the bridge, in plenty. Abundant in the Parsonage Lynch, Newchurch. Profusely at the northern extremity of Horrington withy bed, also by the stream close to Horrington Bridge, and along the ditches opposite Stickworth, very commonly. Still higher up the same stream (East Yar) it again becomes frequent along its course, and in the willow beds by its side, betwixt Bridge and Bagwich, as also betwixt Roud and Bridge Court (all by Godshill), near the latter in one or two spots, pretty plentifully. It grows likewise betwixt Merrygarden and Cherverton farms, by the stream on the right hand of the little bridge the road goes over, and most abundantly in a moist spot in the angle of a copse a little south-west of Combley farm, near Arreton, quite covering the ground. Sparingly in a wet meadow by Newport Mill (West Mill?). By St. John's turnpike, Ryde (Monckton Mead), Dr. T. Bell Salter. By the bridge at Alverston, in plenty, *Id.*!! Under the cliff at Shanklin, Mr. Dawson Turner in Snooke's Fl. Vect. Not uncommon, I conceive, in mainland Hants, although as yet I have only the undermentioned stations to give for this beautiful and conspicuous plant. Plentifully along the streams a little to the south-east of Petersfield, in several places, as well as by the mill at Sheet, near that town. Frequent apparently about Selborne. In one or two wet hollows in the bends of the stream betwixt Priory and Oakhanger, plentifully. I found it most profusely in the Combe Pond, betwixt Selborne and Priory farm, a part of which was exclusively filled with it in full flower, June 17, 1850; but the pond is in progress of draining, and the species may not continue to grow there much longer. Dr. Salter finds it by the bridge at Oakhanger, and in a swamp at the foot of Weekhill hanger. I noticed it, in 1848, in several places

about Botley and Bishop's Waltham. *S. carinatus* and *S. triqueter*, found in Sussex, may one or both be fairly looked for in this county; but I fear the former is hardly distinct from *S. lacustris*.

Scirpus lacustris. In ponds, ditches, rivers, slow streams, and marshy meadows; common in most parts of mainland Hants, but never found by me in the Isle of Wight, which possesses only the next species or variety. In great quantity in a large pond at the back of Langston, near Havant. Very abundantly in the river Itchen, betwixt Winton and King's Worthy. In the Lymington river, a little above Hayward Mill, Boldre, &c. Titchfield river, Mr. W. L. Notcutt.

Scirpus Tabernæmontani (*S. glaucus*, *Sm.*) In brackish or salt marshes, ditches and pools, but sometimes in those of fresh water; only found, I think, along the sea board, or at very moderate distances from the coast. Abundant in several parts of the Isle of Wight. Marsh ditches behind Ryde Dover, pretty plentifully. Ditches near Gurnet Bay, where the plant is much smaller than at Ryde. Brading marshes, in plenty. Common in the ditches at Easton, Freshwater Gate, and abundant in marsh-meadow ditches, between Yarmouth and Thorley. I have gathered it in little inland fresh pools betwixt Ningwood and Hampstead, and on the mainland, where it is extremely common along the coast, as in Hayling Island, Stokes Bay, &c. With all the apparent constancy which distinguishes this from the last, in the glumes, number of styles, and smaller size, I find great difficulty in believing it to be anything more than a maritime form of *S. lacustris*. It occurs, it is true, in the Flora of Halle in Saxony, but that district abounds in some parts with salt, and yields salt-marsh plants, such as *Salicornia*, *Scirpus maritimus*, &c. I have certainly seen transition states from one to the other, in particular the glaucescence of the culms varies greatly, and is sometimes scarcely more obvious in our present subject than is *S. lacustris*, which itself occasionally assumes a conspicuously blue or grayish colour.

Scirpus cæspitosus. On barren turfy heaths and moors; not yet observed in the Isle of Wight, but plentiful enough in mainland Hants, over all which part of the county it is probably dispersed. Abundant on many parts of Titchfield Common. In the New Forest, near Rufus's Stone, betwixt it and Castle Malwood, and doubtless frequent in other parts of the forest. Abundant on the moors by Christchurch, and profusely on heaths and moors near Ringwood, in the vast fir plantations between the Avon and the Stour, at St. Leonards, &c. By Cæsar's Camp, near Farnborough. On heaths in

the Holt Forest; Mr. W. W. Reeves (in litt.). At Fleet Pond, Mr. H. Bull (in litt.). The apparent absence of this plant from a district by no means deficient in heath and marshy ground is a remarkable feature in the Isle of Wight flora; and I am still inclined to the belief that it has been overlooked in the island, not really wanting there. This species flowers with us from the very commencement of May, or even at the close of April; the books give June, &c.

Scirpus pauciflorus. On wet or boggy heaths; apparently rare in the Isle of Wight and county generally. Plentiful on the upper part of the heath at Colwell, Freshwater, towards Weston, July 6, 1840. Bog on the right hand below the road about three miles from Lymington towards Brockenhurst, June, 1849. Nutshaling (now called Nursling), Townhill and Netley Commons; Mr. Winch, in New Bot. Guide.

Scirpus parvulus. In damp places, extremely rare. Discovered about ten or twelve years ago, by the Rev. G. E. Smith, on a mud flat near the baths at Lymington, but now seemingly extinct from alterations. I have several times instituted a most careful search, as has also Mr. Borrer, on the spot indicated to me by the discoverer, which is on the gravelly flat betwixt the bath house and the river, but I fancy the exact place where the plant grew is now occupied by a rectangular reservoir for the supply of the baths, and not, as has been stated, by a swimming bath, unless I have quite mistaken the directions given me, as that establishment, though contiguous, is separated from the outer baths by an embankment and high palings, and could not, I am confident, have been the station for the *Scirpus*, seeing that it does not accord with the diagram of the locality furnished me by Mr. Smith himself. There is still a considerable surface of undisturbed salt flats, close to the bath buildings, and as these from their inconvenient distance from the town and participation in the general decay of the borough (no longer the fashionable resort of the county families for sea bathing it once was), hardly pay the cost of keeping up, it is not probable that any further improvements or additions to the baths will be made to trench on the remaining ground, still likely to afford this rare little species on reiterated and persevering search. Some logs of timber lay on the spot where the *Scirpus* grew, and timber is still deposited on the same flat ground by the baths, which might naturally create a suspicion of the plant's having been conveyed by the latter from abroad; but what I have always seen lying there looks more like oak timber from the neighbouring forest, judging by its small scantling and being almost in the rough, merely

barked and slightly trimmed, not squared or sided, as it would be, I apprehend, coming from a foreign port.* I have set the bath-keeper, an intelligent and obliging person, to look out for the *Scirpus*, but do not hope for much assistance in its re-discovery from one ignorant of botany, and therefore wanting both in zeal and experience for the detection of a plant scarcely exceeding an inch in height. I have seen specimens in the herbariums of Mr. Smith and Mr. Borrer, and others, deposited by my reverend and esteemed friend, in that of the Chichester Philosophical Institution, but possess none of my own. I cannot doubt but that *S. parvulus* is truly indigenous in this, its only recorded British station, since it inhabits the south and middle of Europe, as far north as Denmark (by the Elbe in Holstein), but would seem to be extremely local and uncommon on the continent as with us. There is an excellent figure of it in 'Flora Danica,' vol. xiii. t. 2161.

Scirpus fluitans. In ditches, drains, pools, and watery pits, either floating in the water or constituting a dense and spongy but treacherous turf around the shallow margins of the two latter. In several parts of the Isle of Wight. Marsh ditches at the upper or north-west end of Blackpan Common, in great plenty, and in watery gravel pits on Bordwood Heath. In clay pits on heathy ground near the western arm of the Newtown river. All along the little ditch or drain bounding the fir plantation by Winford farm, rooting in soft mud. I have at present only the undermentioned mainland station to give for this *Scirpus*, which I cannot suppose to be really rare in the county, although it happens not to have fallen under my notice since I began to investigate that, the more extensive portion of Hampshire. South end of Miller's Pond,† Mr. W. L. Notcutt, in a list of the Rarer Plants near Southampton, in Phytol. i. p. 328.‡

Scirpus setaceus. In damp sandy or gravelly places, on wet ditch banks, in low meadows, drains, and turfy bogs, &c., but by no means a frequent plant, at least in the Isle of Wight, where, and along the coast opposite, its place is chiefly supplied by the next species. In a

* The peculation so long carried on with impunity in the New Forest, through the supineness and maladministration of the forest officers, and recently brought before the public in judicial and parliamentary inquiries, must materially have helped to stock-the builders' and shipwrights' yards of West Hants, with oak timber at an easy rate.

† Marked Weston Pond in the Ordnance Map.

‡ Since this was written I have found *S. fluitans* near Christchurch, in the New Forest, and elsewhere on the mainland; no uncommon species across the water.

ditch near Ninham farm, by Ryde. Plentiful about Lake Common and in various parts of Sandown Level. By Lashmere Pool, at the foot of Bleak Down, but perhaps extinct there by the late draining. In a boggy meadow a little above Newbridge towards Calbourne Mill. Undercliff and east of Shanklin Chine; Mr. Wm. Wilson Saunders. Meadows by Steephill, Mr. Fred. Townsend. Not likely to be rare in mainland Hants, but I have only the following localities to cite for it at present. Moist border of a field on the skirts of Durley Wood, near Bishop's Waltham, 1849. By a pool betwixt Cracknore Hard and Marchwood, near Southton, July, 1850. Rownam, near Southton; Mr. James Hussey!

Scirpus Savii. Far from uncommon in the Isle of Wight and along the opposite coasts of the county, in similar places with *S. setaceus*, in damp springy spots by rills, in woods and on heaths, also on wet slipped land by the sea shore, &c., never at any considerable distance from the latter, or in the interior of the county. On the farthest part of St. Helen's Green. Most profusely on the banks of slipped land under the Cliff in Sandown Bay, within half a mile of Shanklin Chine on its north side, 1840 and 1844 (See Phytol. ii. p. 516); some of the densely cespitose, depressed and radiating spreading tufts measured as much as fifteen inches across. Wet spots on Briddlesford Heath, and in a marshy meadow not far from Landguard farm, by Shanklin, in one spot plentifully. Colwell Heath, Freshwater. I find it in various places betwixt Niton and Blackgang, especially along the little stream that descends over the dislocated land to the sea, in great abundance, as well as in most plashy spots on that part of the coast. These are the principal stations known to me in the Isle of Wight for this little *Scirpus*, but it may be found in most other parts of it occasionally, by looking in the proper situations, where it is apt to be mistaken by those unacquainted with it for *S. setaceus*. Mr. Borrer, one of the first I believe to recognize it in the south-east of England in modern times, may be held its discoverer again in our own day in the Isle of Wight;* he having noticed it many years ago at Knowle near Niton. Perhaps not less frequent along the opposite mainland coast, although this rather common Hampshire plant would seem to fail reaching Sussex to the eastward. On wet sand-banks near Christchurch (Hengisbury) Head, Oct., 1849. On wet gravel in a field a little way from the bridge at Lymington,

* I have shown in a former part of this journal (Phytol. ii. p. 516) that *S. Savii* was distinguished specifically from *S. setaceus*, more than two centuries back.

adjoining a brickyard, in considerable plenty, Sept., 1849. Near Boldre, on the way to Royden farm, with *Centunculus minimus*. In the Isle of Wight I have hitherto remarked only the variety with a solitary spike (var. β *monastachys*, *Hooker*), but in the specimens collected at Lyminster many of the stems bore two spikes, very rarely three, the second spike usually somewhat lateral, either quite sessile or on a peduncle more or less elongated, sometimes even greatly exceeding the spike itself in length. In many instances the stems were forked at the summit, each fork bearing a solitary spike, neither of which was more evidently terminal than its fellow; and often the terminal as well as the lateral spikes was elevated on a longish stalk or peduncle, all these peduncles being distinguished from mere prolongations of the stem by strongly winged, deeply projecting ridges, giving the appearance of being spirally twisted. In these specimens the bracts were very short and minute, and in a great proportion of the spikes obsolete.

Scirpus Holoschoenus. In damp sandy places on or near the sea-shore; very rare, and perhaps extinct in Hants. "On the sea-shore in this county," Robson (*Bot. Guide*). Found in Hampshire, by Sherard (*Moris. Hist. Plant* iii. p. 232), and in this county, according to Petiver, also (*Ray's Syn.*) Not detected, so far as I am aware, by any botanist of more recent times, but as no station was given by the authorities quoted above, there is every possibility that this rare plant still grows in some little explored corner of our extensive coast line.

Blysmus compressus. In marshy or boggy pastures, on turf moors and grassy sides of rivers, ponds, &c., rare? Fisher's Pond near Bishop's Stoke; Mrs. Delmè Radcliffe !!! The first notice I had of this as a Hampshire species was from Mr. J. Hussey, in whose herbarium at Salisbury I saw specimens in May last, received by him from Mrs. R., who kindly gave me directions to the locality. I could not find it in the precise spot indicated to me at the south-west end of the pond, but gathered it in tolerable plenty on a space of moderate extent close to the water's edge, about the centre of the western side of the pond, July 6, 1850. In very great plenty in some moory meadows by the river side, betwixt Bishop's Stoke and Otterbourne, a little to the eastward of the South Western Railway, and to the northward of Highbridge, July 10, 1850. It occurs unquestionably elsewhere in the county, and may be reasonably expected in the Isle of Wight. In Baxter's '*Flowering Plants of Britain*,' it is stated, on the authority of Mr. Bicheno, to be plentiful about Newbury in Berks, which town being only two miles from the Hampshire boundary, the

Blysmus should be looked for along that part of the frontier line. The more exclusively northern *B. rufus* may be found extending its equatorial limits as far as this and other southern English counties. Our species has some resemblance to *Carex intermedia*, and was at one time even referred to that genus by Linneus, and called by him *C. uliginosa*, manifestly through hasty examination or careless inattention to the great differences in the structure which distinguish these genera.

Eriophorum vaginatum. On turfy boggy heaths, and wet barren moors; apparently quite uncommon in Hants, although doubtless other stations besides those subjoined exist in the county. On a bare stony bank, under Cæsar's Camp, near Farnham, just above a spring, along with *Convallaria majalis*, 1844, Mr. W. W. Reeves. Sought unsuccessfully there with the discoverer, April 30, 1850, both plants having seemingly become extinct. On Christchurch or Hengistbury Head, and at Sandy Balls, near Breamore, Mr. J. Hussey! In Miss Lovell's herbarium is a specimen of an *Eriophorum*, with a solitary spike, picked by herself, Sept. 23, 1847, under the shore going westward from Blackgang towards Walpen Chine in this island, but the plant wants the inflated leafless upper sheath of the present species, and is, probably, only an accidental single-spiked form of the following.

Eriophorum polystachyon. In wet and boggy places, on barren moors and heaths, also on slipped land along the sea coast. Var. α . Fruit obovato-elliptical, *E. polystachyon*, *Leight.*, Fl. of Shrops. p. 31, and fig. in pl. 2. Most abundantly on bogs on Rookley Moors, about the Wilderness, &c. Abundant in boggy ground on the south-eastern face of Bleak Down. Var. β . Fruit elliptical-acuminate; *E. angustifolium*, *Leight.* (ut supra), with the former about the Wilderness, in plenty. These two varieties are scarcely distinguishable from each other by any well-marked or constant character, nor do I find the hairs of the second, in this island, any longer than those of the first variety. One or other grows on the wet, slipped banks of clay, in Colwell and Totland Bays, near Blackgang, and elsewhere, occasionally along the south-western shores of the island. Exceedingly frequent and abundant in mainland Hants, on the extensive moorlands of the New Forest, Christchurch and Ringwood Hundreds, and, indeed, over most parts of the county.

Eriophorum latifolium. In similar places with the two preceding, but apparently much rarer than *E. polystachyon*. At present I have only the undermentioned stations to record for it in Hands, but it is

highly probable that it has been passed over by me, at least on the mainland, for the last species. Plentiful on the upper and boggy part of Colwell Heath, Freshwater, June, 1841. Well distinguished by the peduncles of the flower-spikes, that are scabrous in various degrees, with minute, subappressed bristles. *E. gracile*, *Roth* (not of Smith), found in Surrey, should be looked for in this county.

In the following enumeration of the Hampshire Carices, the list will be found extremely imperfect as regards the mainland division of the county, for which stations are still wanting to show the distribution even of the commoner species, whilst several additional ones remain doubtless to be discovered. My comparatively recent and imperfect practical acquaintance with that part of Hants; its great extent compared with the Isle of Wight; the restriction of the flowering and fruiting of the sedges to the earlier months of summer,* and the difficulty of inducing the generality of local observers to pay attention to these and the rest of the Glumaceæ, in their respective districts, or even to transmit specimens fresh or dried for examination and recording; all these have proved obstacles to ascertaining with any approach to precision the number, frequency and distribution of the Cyperaceæ and their allies over the greater portion of the county, and have compelled me to depend mainly on my own exertions for filling up so important a gap in the botany of the district. As far, however, as regards the Isle of Wight, the catalogue of indigenous species belonging to these interesting and beautiful orders, will, I flatter myself, be found tolerably complete, they having engaged much of my attention for several years past. The rich sample yielded by this little sea-girt spot, gives earnest of what may be expected from diligent exploration of a field of four or five times its area, hitherto so superficially examined, and that chiefly by strangers and temporary visitors, as has been mainland Hants. I shall consider myself particularly under obligations to such botanical friends and correspond-

* It is proper to remark in this place, that in the Isle of Wight, and unquestionably in every part of the county besides, by far the greater number of Carices indigenous thereto, flower in May, and not a few towards the close of April, only partially continuing to blossom on through the first week or ten days of June, excepting the undermentioned, which belong mostly to that month: *C. ovalis*, *intermedia*, *extensa*, *vulpina*, *Pseudo-cyperus*, with perhaps one or two others. A knowledge of this fact will save the botanist in the island both trouble and disappointment, as, if guided by the time given in our ordinary hand-books, he will find those species in fruit, perhaps over-ripe and ready to fall away, which he was led to expect in flower, or in that intermediate state of flower and fruit which is the best possible for examination and preservation in the herbarium.

ents as will favour me with specimens and notices of Hampshire Gramina and Cyperaceæ, the latter more especially, as less easy of detection than the grasses, after the first half of summer, when the fruit has fallen away. I am already indebted to Mr. Borrer for information and examples illustrative of both these tribes, in the district where such help is most needed; and Mr. Watson has communicated to me notices of one or two grasses new to the county, leaving me to regret the want of such able and zealous assistants to lighten my labours by more than their occasional services.

Carex dioica, although as yet a very dubious inhabitant of Hants, can scarcely be supposed a stranger to the bogs and marshes of this county. It was pointed out to me growing sparingly in one spot, June 17, 1844, by Fred. Townsend, Esq., in a moist meadow immediately behind the Wilderness, at Rookley. I find the station entered as above in my MS., with a doubt expressed, but I think I felt such doubt at the time of seeing the plant, and having unluckily preserved no specimens, I held it safest to suppose an error, and that *C. pulicaris* was in all likelihood mistaken for *C. dioica* in this instance.

Carex pulicaris. In bogs and marshy places, on wet moors, heaths and commons; not unfrequent in the Isle of Wight, and probably throughout the county. Heath near Smallgains farm, by Newport, frequent. At Freshwater Gate, and abundant on the upper part of Colwell Heath. Wet places on Lake Common, and on Bleak Down. Marshy, heathy ground at the back of the great fir plantation in Long Lane, near Arreton. Bog at Blackpan, Dr. T. Bell Salter! Bog just below Cockleton farm, Miss G. E. Kilderbee. Titchfield Common, Mr. W. L. Notcutt!!! Titchborne Common, Mr. W. Pamplin. I have since met with it in other parts of mainland Hants, where it is certainly not uncommon.

[*Carex incurva*.] In looking over the herbarium of the late Mrs. Robinson, of Fareham, shortly after that lady's decease a year or two ago, the Rev. G. E. Smith found a couple if not more of packets of this northern sedge, each paper containing numerous specimens, and labelled in Mrs. R's. hand-writing, "Bog on Titchfield Common." That a *Carex* hitherto found only in the northernmost parts of Britain, on the continent,* and restricted to the dry sandy shores of the ocean, should grow on a southern and comparatively inland morass, is a deviation from its usual habitudes so improbable, that with one of these specimens before me, for which I am indebted to

* It is stated, however, to grow on the Alps, as the *C. juncifolia* of Allioni.

Mr. Smith, I do not feel justified in admitting the species into the Hampshire flora (except between brackets), without more satisfactory evidence than the fact above stated supplies. Mrs. Robinson was most assiduous in collecting the plants of her neighbourhood, and I believe usually careful and exact in noting down their localities; but her collection embraced plants from other quarters of the kingdom, and it is very possible that in this case some transposition of names might have been committed in labelling the series of specimens, or the latter may have been themselves shifted into papers not intended for them, and inscribed with the locality for some other plant.* I spent some hours in June, 1849, searching for this *Carex* on Titchfield Common, without seeing a trace of it; but I might after all have missed the spot, for the common is of immense extent, and would require several days to explore completely. *C. incurva* has not, I believe, been found further south in Britain than Forfarshire; yet would a leap of some 400 miles, from the sands of Barrie to Titchfield Common, be not a wholly unprecedented, although sufficiently startling instance of anomalous distribution amongst plants; neither would its appearance in a somewhat inland and even boggy station be cause for much astonishment, seeing that *C. arenaria*, usually a species of dry, sandy sea-shores, occasionally occurs at considerable distances from the coast, in the like sandy and even (as we shall show in speaking of that plant) wet or boggy spots. But besides that the soil of Titchfield Common is not of a sandy character, the boggy nature of the station here assigned to *C. incurva* does seem foreign to that plant, as hitherto observed, and consequently affords very strong grounds for disbelieving in the existence of this *Carex* in Hampshire. Still the matter deserves further inquiry, and the attention of botanists visiting Titchfield is hereby respectfully directed to the point.

Carex divisa. In meadows, pastures, and grassy places, on or near the coast, and in salt marshes; very frequent both in the Isle of Wight, and along the opposite shores of Hants. Frequent about Ryde, in the marshy meadows behind the Dover, in a part of which it constitutes a large proportion of the coarse herbage. In the meadow behind Quarr Abbey, dividing Quarr Copse from Shore Copse. Abundantly in the meadows betwixt Springfield and Nettleston

* I think I understood from Mr. Smith, that the stations only, and not the name, was written on the packets, as if the species had been unknown to Mrs. R. I am not sure if this be fact, but if so, it lends much weight to the supposed discovery of *C. incurva*, at Titchfield, coupled with the circumstance of there having been more than one paper found labelled as above.

Point. Plentiful and very fine at the mouth of the Wootton river. Common about Cowes, as in Gurnet Bay, and abundantly in all the marshy meadows at the back of it. By creeks of the Medina, above West Cowes, frequent. Abundant in a meadow betwixt Yarmouth and Thorley, on the left hand of the small bridge, also along the shore a little east of Yarmouth. At Bembridge, by the road side opposite the blacksmith's shop at Hillway, Dr. T. Bell Salter. Very common, I think, on the coast of the mainland. Frequent near Alverstoke, and if I recollect rightly in Hayling Island. Meadows along the shore below Lymington, where, as in the Isle of Wight, it forms the greater part of the herbage. Salt marshes at Exbury. Marshes near Hill Head, in abundance, Mr. W. L. Notcutt! A troublesome plant in our natural maritime meadows and pastures, as being apt to mingle in too large a proportion with the hay crop, that here and there consists of little else but this sedge, which is commonly in flower with us by the middle of April. Schkuhr's figure of *C. divisa* is a professed copy of Goodenough's, and being coloured from description only is very unlike nature.

Carex intermedia. In wet meadows, by the sides of ditches, pools, rivers, &c., not rare. Frequent in the marsh at Easton, Freshwater Gate.* In a wet meadow at the upper end of Brading Harbour, plentifully. Boggy, swampy marshes at Andover. On Stoke Common, and in the Nythe pastures by the great pond at Alresford, plentiful in both places. Winnal meadows, by Winchester, Chilbolton Common. Bog at Cockleton, near Cowes, Miss G. E. Kilderbee! and many other places. Var. β . Spikes very compact, spikelets for the most part pistillate throughout with darker glumes. Wet meadow between Brixton and Muggleton, Isle of Wight, April 30, 1846. A rather remarkable form, differing from the ordinary state in the closer, less distinctly lobed and elongated spikes, which in nearly all the specimens I collected appear to consist entirely of pistillate florets throughout, one example only exhibiting staminate florets towards the summit of the spike, those below and at the apex being pistillate as usual. This variety has broader leaves than in my

* I much fear that all the interesting plants at Easton are in a fair way of being speedily exterminated, through the bog-reclaiming zeal of Mr. John Squire, of Yarmouth, and that by this time many of the stations recorded in the earlier part of these notes have become matter of history only. I have not visited that ill-fated morass for some months, but have been complacently invited to come and view the improvements made there this summer, and which I expect will have robbed the spot of half its attractions for the botanist.

examples from other places, and the stems are somewhat arcuate. There cannot be the smallest doubt of its being a mere variety of *C. intermedia*, nor could Dr. Boott, to whom I showed it, refer it to any other species. The fruit of *C. intermedia* seems to be not often perfected, I find it so, however, at Easton, but do not perceive in the well-ripened perigynae any sign of that widening at the base of the beak mentioned by Babington and figured by Leighton (Fl. of Shrops.), and which I therefore take to be an inconstant character. Dr. Boott thinks that Hudson's name of *disticha* should be restored to this species on the score of priority.* Nut greenish yellow, shining, punctate, and somewhat wrinkled lengthways, ovoid-elliptical, very flatly trigonate, the lateral angles obtuse, with a narrow rib-like margin, tipped with a short cylindrical process, on which the style is jointed.

Carex arenaria. Common on sandy sea-shores of the Isle of Wight, and mainland Hants; very rare in sandy places at a distance from the coast. Plentiful on Ryde Dover. Shore at Bembridge. Abundant on the debris at the foot of the cliffs in Sandown Bay, and on the detritus of the sand-cliffs, between Niton and Blackgang. Shores of Portsea and Hayling Islands, Christchurch Head, &c. About the sand-pits on the south-west side of Petersfield, close to the town, in plenty, August, 1849. In considerable abundance a few miles from the sea, in damp, blackish, sandy turf, on a moor near the Avon, a little above Sopley, called, I was told, Dudmore (part of Hurne Common?), growing with *Ericæ*, *Calluna*, and other moorland plants; June 30, 1850. Var. β . Stem and spikes upright, root fibrous, Withering's Arr., 3rd edit. ii. p. 90, t. 20, *C. Witheringii*, Gray's Nat. Arr. Sandy shore on the north-east side of the Isle of Wight, Withering!!! On Ryde Dover. A very slight form, or rather state, of *C. arenaria*, with a less creeping rhizome than usual, but differing in no other respect, so far as I can see. The Petersfield and Hurne stations are among the few inland localities I know for this species in England. In 1838, I remarked it very abundant in the loose, sandy soil at Mil-

* Hudson's name, although not unexceptionable, is preferable to that of *intermedia*, subsequently imposed by Goodenough, because, as he tells us (Trans. of Linn. Soc. ii. p. 155), of "having generally the intermediate spiculæ almost entirely male" (staminate). But the adjective *intermedia* is mostly employed to signify a transition species, or one intermediate between two others, its near allies in character; as used, therefore, by the Bishop of Carlisle, the question at once suggests itself, betwixt what two species is our *Carex* the connecting link? The spikelets of this sedge, if not strictly speaking distichous, present sufficiently the appearance of that mode of arrangement to render Hudson's epithet allowable.

denhall, in Suffolk. The long, creeping rhizome, when chewed or bruised, imparts a certain weak spicy taste and smell, like camphor and ginger combined, and has been used in Germany as a substitute for Sarsaparilla.

Carex vulpina. In boggy or marshy places, sides of rivers, ditches, &c. (even salt or brackish), also in wet woods and hedges; one of the commonest species of the genus in Hants, abounding over most parts of the Isle of Wight and mainland pretty equally. About Quarr Abbey and elsewhere near Ryde, &c., frequent. Rachis of the spike very suddenly contracted at the top of the culm, which last, in damp thickets, is often four or five feet long, and reclining or even trailing. Very closely allied to our plant is *C. stipata*, *Muhlenb.*, *C. vulpinoidea*, *Mx.*, which I remarked to be frequent in North America, but abundantly distinguished from *C. vulpina*, by its much softer stems, so deeply and acutely triquetrous as scarcely to present any central core or cavity, at the juncture of the three flat thin wings or angles; in its perigynes, which are more convex at the back, very abrupt and flat at the base, which is usually depressed in the centre, and on a slender stipes; in the much longer beak, and, lastly, according to Schkuhr, in having the sheaths of the lower leaves transversely striated. The seed (nut) in both species is very similar. The ripe perigynes of *C. vulpina* are usually deep rusty red, but I find them in some parts of the county of a dark brown, nearly black colour.

Carex muricata. In moist gravelly pastures, on banks and under hedges, by road sides, &c. In several parts of the Isle of Wight, but not common. Quarr Copse, May, 1840. By the road-side close to Gurnet farm, by Gurnet Bay, in plenty, June, 1838. In the plantations under the cliff betwixt Shanklin and Cook's Castle, 1840. Along the top of the Parsonage Lynch, Newchurch, 1841. Abundant along the road-side between Bowbridge and Godshill, June, 1843. Betwixt Alverstton and the Grove, by the road-side. Possibly not uncommon on mainland Hants, but at present I have only the following station to record. Alverstoke, June, 1849. Ripe perigynes of the closely approximated spikelets more widely spreading, and the edges of the beak much rougher than in the following species. Similar as are this and the next species, there appear to be sufficient grounds for holding them distinct. Dr. Boott, than whom no one has studied the Carices more assiduously and profoundly, writes to me thus on the subject: "I think the habit of *C. divulsa* is different from *C. muricata*, and it is found in countries in which *C. muricata* is not a native."

Carex divulsa. In damp hedge bottoms, on banks, in woods, and

moist shady places. Much more frequent than *C. muricata* in the Isle of Wight, and, in fact, no uncommon species in the county at large. In many places about Ryde, close to the town, as in hedges about Little Barground (formerly at least, now perhaps destroyed by alterations), in Quarr Copse, by the road-side betwixt Oakfield and St. John's, and elsewhere. Plentiful with *C. remota*, under hedges in the lane that crosses the Newport road, on Binstead Hill, leading to Ninham, Firestone Copse, &c., and on the road out of Ryde towards Upton, and Haven Street, near the direction post. Frequent on hedge-banks about Newchurch, as by the road-side to Mersley, &c. Near Osborne or New Barn farm, East Cowes. In plenty on a low bank facing the lodge gate at Westover, and by the road-side betwixt Newbridge and Colbourne, &c., as well as in various other parts of the island. About Titchfield, in hedges, between Titchfield and Fareham. Strathfieldsaye Park and elsewhere, remarked by myself, not uncommonly. Titchfield road, Puxol Lane (near Fareham), Mr. W. L. Notcutt. Assuredly very close to *C. muricata* in character, yet I do not remember ever having found any difficulty in distinguishing one from the other. The ripe perigynes of the more remote spikelets are only moderately spreading, and are quite glabrous and smooth, excepting a few small distant serratures towards the apex of the gradually tapered beak. The nut I find exactly similar in both plants. *C. teretiuscula* most likely inhabits the county, but it is either itself an obscure species, too nearly resembling *C. paniculata*, or I do not sufficiently know the plant to be able to distinguish it at sight; all the specimens I have at first taken for it have proved on further examination to be only the variety of *C. paniculata* described under that species. My dried authentic examples from other parts of England of *C. teretiuscula* do not help me to discriminate these two from each other.

Carex paniculata. In wet boggy woods, thickets, willow-beds and in watery meadows; extremely frequent in the Isle of Wight, and, as far as my observation has yet extended, throughout the county. Plentiful in a wood a little way out of Ryde, near the junction of the roads to Ashley and Haven Street. Abundant in all the wet thickets about Newchurch and Alverstons, in Apse Heath and Horringford withy beds, on the Wilderness, and Rookley Moors, near Newport, and in most swampy thickets and copses in the island. Var. β . Smaller, in scattered simple tufts; panicle close with short branches. Bog below the bank betwixt Hartsash and Knighton farm, a little above Knighton Lower Mill, in plenty, May 6, 1845. On boggy

meadow ground near the Wilderness, and I think not uncommon. This form, which may be the one slightly alluded to in the second edition of 'Babington's Manual,' under the present species, I at first took for *C. teretiuscula*, but could not make it quite agree with the original description of that species by Goodenough, in the 'Linnean Transactions.' *C. teretiuscula* has indeed always been to myself an obscure and ill-defined plant, possibly from never having seen it growing or in a living state, but I cannot avoid remarking here that in description, the dried specimens, and plates, it bears a suspiciously near resemblance to *C. paniculata*. The description in the Manual of *C. teretiuscula*, *paradoxa*, and *paniculata*, are not such as to increase confidence in their distinctness as species, or to enable the tyro, or those not practically acquainted with the three, to discriminate between them with certainty. In dealing with these plants in the normal state of each, some difficulty, I apprehend, will be found in obtaining characters of sufficient fixity and importance to satisfy the doubts of a great many, doubts naturally much strengthened by learning the existence of such an awkward-sounding "intermediate," betwixt *C. teretiuscula* and *paradoxa*, as the *C. Pseudo-paradoxa* of Gibson (*C. Ehrhartiana* of Hoppe, and *C. teretiuscula* β . *Ehrhartiana* of second edition of the Manual). My own variety β ., mentioned above, is very probably identical with this last, but if so, is, I am fully persuaded, a mere form of *C. paniculata*, of smaller, more contracted growth, perhaps even a young state of the whole plant, which at a period further advanced would become stouter, taller, and more cespitose, and with a more expanded panicle. Sir Wm. Hooker, who is justly sceptical of the claims of *C. teretiuscula* as a species, moreover, observes, "The *C. paradoxa* of continental writers appears to be almost intermediate between them" (*teretiuscula* and *paniculata*), and whoever will be at the trouble of comparing the descriptions of these three plants and dried specimens of the same, must, I imagine, feel some scruple in keeping them distinct. Dr. Boott, the best authority, perhaps, at the present day for the *Carices*, as having made this interesting genus an object of peculiar study, and possessing, probably, the most complete collection of the species in existence, speaks of the line on the convex side of the perigyne, in *C. teretiuscula* and *paniculata*, as only "sometimes winged" (Hook. Brit. Fl. 5th. edit. p. 425.) In the specimens of ripe fruit of *C. paniculata*, in the carpological collection I have been for some year forming of British plants, I find no such winged ridge on the back or convex surface of the perigyne, but at most an obtuse, often evanescent ridge, along the

centre of the gibbous (not triangular) outer side, which fails to reach the beak, and is, in fact, only the central nerve or rib, not more distinct or prominent than the lateral ones; * whilst on the outer side of the beak, I perceive only an occasional thickening, now and then forming a slight ridge, hardly to be called a wing, and as often or oftener obsolete as present. Again, I find the (fully ripe) perigynes by no means "obscurely many-nerved," but, on the contrary, that the nerves are for the most part very distinct, prominent, and rib-like on both sides at the base, vanishing at different distances in their course upwards towards the beak, into which, or nearly so, one or more of the central nerves very commonly extends. The densely tufted and matted fibres of the roots form, with the soil which they bind into a firm mass with their own substance, large conical mounds, often several feet in height, used, it is said, in some English counties for hassocks, and serving as stepping-stones, enable the botanist to traverse the boggy thickets with dry feet. The long tough culms are employed in this island as a cheap though inferior substitute for straw, in thatching ricks, &c., occasionally.

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued).

Errata in previous Numbers.

- Page 836, *note at bottom, for Holtzartin read Holtzarten*
 „ 845, *fourth line from bottom, for Stapler's read Stopler's.*
 „ 853, *third line from bottom, for lesianthus read lasianthus.*
 „ 906, *second line from bottom, for guide books, flourishes read guide-book flourishes.*
 „ 908, *line twenty-two from top, for Parholt read Parnholt.*
 „ 908, *line twenty-eight from top, for Trondiem read Trondyem.*
 „ 911, *line five from top, for Akenden Wood read Akender Wood.*
 „ 913, *line four from top, for Serapis read Serapias.*
 „ 917, *note, line three from bottom, for Erithronium read Erythronium.*
 „ 955, *line twenty-three from top, for Haverstreet read Havenstreet.*
 „ 955, *line twenty-eight from top, for Gadshill read Godshill.*
 „ 1003, *line fourteen from bottom, after (in litt.) add !!!*
 „ 1004, *line three from top, for Ilford read Iford.*

* Repeated observation has convinced me that too much stress should not be laid on the number, direction, or distinctness of the nerves or ribs on the perigynes of the

Notice of 'The Tourist's Flora: A Descriptive Catalogue of the Flowering Plants and Ferns of the British Islands, France, Germany, Switzerland, Italy, and the Italian Islands. By JOSEPH WOODS, F.A.S., &c.

THIS book has been a long time spoken of; and we accordingly presume that it has been long also in course of preparation for the press. It is, moreover, the work of a botanist of many years' experience in that somewhat narrow view of botany which regards plants merely as numerous single objects, to be distinguished from each other by names and descriptions of external form. Such a work, by an author so qualified, we should expect to find good and useful after its kind; and the expectation is not disappointed by 'The Tourist's Flora.' The following passage, from the Introduction, will let the Author himself explain the scope and aim of his volume:—

"The intention of the present work is to enable the lover of botany to determine the names of any wild plants he may meet with, when journeying in the British Islands, France, Germany, Switzerland, and Italy. I have chosen these limits as those of the countries most frequented by English tourists, and with the botany of which I was in some degree personally acquainted. To have extended them further, would have made my book more bulky, and, I am afraid, more imper-

various species of *Carex*; and, further, that descriptions of the fruit should be drawn up from *perfectly ripened* specimens alone. It is not before complete maturity that these nerves are to be seen in full distinctness and relief; till then, they often continue wholly or partially obsolete or obscurely manifest, neither can the true form of the entire perigynae be so well judged of and described in a green or half-ripe state as afterwards, when no further change of shape takes place, by the dissipation of its fluid constituents. The nerves on the anterior and posterior faces of this organ are left indefinite by nature, nor are their direction and length much more rigidly appointed them; it becomes, therefore, a matter of importance to describe this essential part of the plant in its most inalterable condition, for the avoiding as much as possible those errors which lead to want of accordance in the descriptions of different writers. My own practice has been to *collect* the perigynae of all our sedges when *dead ripe*, and to draw up the descriptions of them and the included seed or nut in that state only; the preserved specimens undergo no farther change by keeping, and remain from thenceforth in a condition fitting them for testing the accuracy of written descriptions in any case of doubt or dispute. If the perigynae be gathered before perfect ripeness, there is a risk of their becoming in some degree distorted by shrinking, and, perhaps, giving false or accidental characters, besides which, they do not in that case acquire their proper colour, and when that is at all peculiar or characteristic of the species, it should never, I think, be omitted in a detailed description.

fect. To accomplish this object, I had to keep in view two important particulars,—to make the descriptions clear and distinctive, and at the same time to condense the whole as much as possible, so that the work might be comprised in a single volume, of a bulk not inconvenient for the use of the traveller.” Further, “It will be perceived from this account that the work has no pretensions to originality. My task has been to translate and harmonize, as well as I could, the descriptions of different botanists; and I have added the result of my own observations only where it seemed to be absolutely necessary: considering that to give my own view would often have only been, to add one more to opinions already too numerous.”

The volume of Mr. Woods will readily pass the first ordeal of publishers and critics, who may ask whether the work is one calculated to meet any desideratum in botanical literature. We have repeatedly been asked by English botanists, particularly ladies, who were intending to make a more or less extensive continental tour, what portable work they should carry with them, to assist in identifying the plants they might find in their route. Hitherto, we could seldom give any satisfactory answer to this interrogation; partly because the Latin, or even the modern languages, often presented an impediment to the use of the continental floras; and partly because those floras usually refer to a single country or kingdom, while the tourists would visit portions of several. In the name of the work now under notice, we are at length furnished with a ready and sufficient answer to the same query, whenever it may be again proposed to us.

Secondly, allowing that an Author may fairly claim the right of projecting a work according to his own conceptions of what is desirable and feasible, its purchasers have also their right to expect that the published work shall be carefully and faithfully executed in accordance with the title and plan announced by its Author. Now, while in some respects the plan of Mr. Woods's work seems open to considerable improvement, and numerous small defects of execution appear in his pages, we still cannot hesitate to say in general terms, that the Author has well and truly performed his part of the implied contract with the public, that is, with its purchasers. From the internal evidence there can be no doubt that much assiduous attention has been bestowed on ‘The Tourist's Flora,’ and that much effort has been made to render it complete, concise, accurate, and serviceable, so far as its plan may allow. This is no small merit in these days of hasty book-making, when so many “new works” in science are got up by

needy book-makers, for speculative booksellers to advertize and puff into circulation; but in which the purchaser finds only a title-page *ad captandum*, a few showy pictures for "illustrations," and a *quantum* of text noticeable chiefly for its plagiarism and imperfections.

If, however, we subject 'The Tourist's Flora' to a third and more searching test, by inquiring whether it can be regarded as a contribution towards the *advancement* of science, the reply must be in the negative. Progress does not appear to have been within the Author's contemplation; his object having been to repeat or to re-write the ascertained characters of known plants, and to transcribe the published descriptions of the less known or the merely book species. The distinctive peculiarity of the work is found in the space of Europe to which it relates, and also in its being a continental Flora written in the English language; its merit lies in the well-considered condensation and prevailing precision of its descriptions. True, in various instances, these descriptions are clear and constant only in the printed book, while they are inapplicable and false in the real plants. But we know no living botanist who could avoid making or repeating imperfections of this kind, in attempting to describe all the plants of a space so wide.

Mr. Woods omits the authority for his nomenclature, by not adding the name of the botanist who first applied the generic and specific names he has adopted for the plants. The practice of using this addition has led to so much falsification of nature, through its ministration to the vanity of species-makers, that we are quite content to feel occasionally the small inconvenience of the omission, rather than be subjected to the great and frequent evils of falsification indirectly resulting from the practice. The Author well meets the difficulty, too, by adding the most needed synonymes in his index, with a reference to the names under which he has described the species; while, in the body of the work, he quotes directly from the respective writers the descriptions of species which are obscure or doubtful; adding the writer's name to the description, not to that of the plant. By this plan the compliment becomes one of very doubtful quality; being often and obviously awarded to the obscurity of the describer, or to the falsifying vanity of the species-maker. It may, indeed, be otherwise in some cases, and eventually prove only a just tribute to the acuteness or good fortune of a discoverer. Meanwhile, the plan keeps many suspicious novelties in the category of things to be held doubtful. And if we find the name of any particular botanist re-

peatedly quoted in this way, we are naturally led to doubt the soundness of his judgment, as a distinguisher of species, whatever credit may be awarded to him as an acute observer of varieties.

We have still to mention one department of the work, in reference to which we feel called upon to express much disappointment, on account of its being so imperfectly executed as to be virtually false or faithless. The Author seems to have adopted no ruling plan or principle in giving the habitats of the species, except the old practice of naming habitats for those species which he supposes to be less generally distributed. Now, it would have been perfectly easy to have started on the comprehensive plan of omitting the names of countries for all species that have been ascertained to occur in all the six principal divisions of his area, as indicated on the title-page, or even to have made these leading divisions rather more numerous, by subdividing some of them. The several countries might have been expressly named for other species that do not occur in all the divisions or subdivisions. And more special indications could have been given, by the names of small states, provinces, &c., for species of still more local or limited occurrence. Some regular rule of this kind would have been far more philosophic and useful, than the hap-hazard course taken by the Author, and carried out so very imperfectly, and even falsely.

We venture on the epithets of 'false' or 'faithless;' because, in numerous instances, the habitats are so indicated as to convey wrong information, through omissions that could arise only from utter indifference to accuracy, or the most negligent inquiry. A charge of this nature, however, should never be made by a reviewer, without the citation of examples in illustration of what is meant, and in proof of its accuracy. Accordingly we will select some examples, and take them from that portion of the volume which must have been last printed, and which should consequently be least behind the knowledge of the day.

In the last order treated, that of Lycopodiaceæ, we find the habitats of "Scotland, Dauphiné, Germany," indicated for *Lycopodium annotinum* by the usual abbreviations. The readers of the 'Phytologist' are well aware that the species named has likewise been found in England, and that an early scepticism of the fact was eventually removed by good evidence of its reality. The announcement and confirmation were made long enough ago for the habitat in 'The Tourist's Flora' to have been given more correctly. But as this record does not yet appear in our general floras of Britain, or other collective works, even an Author on the "Ferns of the British Islands" may readily be

excused for overlooking it. The omission of Wales, also, may have been intentional, in the belief that the species has become extinct there. We cite this instance only in illustration of the kind of inaccuracy in the work, and not as an example for which the Author can be censured.

But the inaccuracy becomes censurable when we see the habitats of *Lastræa Fœnisecii* given as "Ireland, North England." We believe that the first particular notice of this Fern, as an English species, was made by the Rev. W. T. Bree, in a list of Cornish plants, nearly twenty years ago. And though it certainly has occurred in some northern counties of England, it appears to be far more a southern than a northern fern, and therefore the express limitation to the North, and implied exclusion of the South, is one of those careless inaccuracies which are censurable on account of their tendency to mislead botanists who use the work, by indirectly misrepresenting well-ascertained and long-recorded facts. Of the three English counties mentioned for the species in 'Newman's History of British Ferns,' two are quite southern, Cornwall and Sussex; the other is Cumberland.

So, again, the habitats of *Scheuchzeria palustris* are cited as "Yorkshire, Vosges, Germany." Of course, any reader of 'The Tourist's Flora,' who relies upon the Author's fidelity in stating habitats, will suppose that the *Scheuchzeria* is not known in any other county of Britain; or, at least, was not so known up to the year 1850. But in the second volume of the 'Cybele Britannica,' published in 1849, four other counties are mentioned for it, and two of them by no means recent discoveries. In the 'New Botanist's Guide,' published in 1835 and 1837, the counties of Salop and Perth are reported, in addition to that of York; and there are other and earlier records for the plant in those two counties. Here, we may say, that the Author has not made any attempt to ascertain and give the present state of knowledge on his subject, but has idly repeated only what was known a quarter of a century ago.

We could cite many such instances, but three or four will suffice to show that we do not censure 'The Tourist's Flora' in this particular without good grounds for doing so. One more example shall be given, because the plant has excited lively attention and interest among British botanists, and even in some degree among continental botanists also. The *Anacharis Alsinastrum* of Babington, appears in the work of Mr. Woods under the name of *Udora occidentalis*. The habitats are thus indicated, "Damschen See near Stettin, Pomerania. Leicestershire." Truly, the readers of the 'Phytologist' will be sur-

prized to learn that this remarkable plant was known in only one county of Britain up to the year 1850. In the 'Cybele Britannica,' 1849, localities in seven counties are reported, with reference to their authorities, but two of them are suspected. Mr. Woods may here plead that the discoveries are quite recent, and that the writer of a general work must almost inevitably be a little behind the knowledge of the day or year of his publication. Such a plea would in general be a valid exoneration for overlooking things of recent record. But the instance of the *Anacharis* or *Udora* is too remarkable and exceptional for the plea to be allowed. If an Author is carelessly inaccurate in stating the habitat of this plant, what may we expect in the case of other plants less likely to command attention and accuracy? Just what we have cited in the *Lastræa* and *Scheuchzeria* above mentioned, and just what we could show in so many other instances.

With regard to the admission of some species, and exclusion of other species, presumed to be of exotic origin, and only naturalized within the area of his Flora, the Author may be held at liberty to follow his own judgment or caprice. But some of the omissions, in contrast with the admissions, strike us as belonging rather to the category of caprice than to that of judgment. Thus, to admit the *Canna Indica*, and exclude the *Sisyrinchium anceps*, seems a somewhat strange preference.

The same license and same comment may likewise be extended to the very debateable ground of species or variety. And as an instance of capricious separation, we may refer to the severance of *Festuca pratensis* and *F. loliacea*, as two distinct species, although a root of the latter absolutely can and does assume the characters of the former under cultivation, and the gradual transition from one to the other can be so easily traced in meadows where both occur. On the other hand, strange to say, after all that has been written about "*Primula elatior*," in England, and the correct manner in which *P. veris*, *elatior*, and *vulgaris* are entered in 'Babington's Manual,' and other works, we find the Author of 'The Tourist's Flora' still confusing together the *P. elatior* of Jacquin, and the umbellate variety of *P. vulgaris*.

Indiscriminate eulogy in the notice of a new publication likely to excite attention, is a fraud upon his readers by the reviewer. And censure without citing examples of what is faulty, is unfair to the Author. We have endeavoured to avoid both these objectionable modes of noticing books, at present too much in vogue. 'The Tourist's Flora' is a good and serviceable addition to our botanical

literature, not without some serious deficiencies; but its excellencies very much outbalance its defects.

C.

Contents of 'Hooker's Journal of Botany,' No. 21, September, 1850.

Contributions to the Botany of Western India. By N. A. Dalzell, M.A.

Continuation of Mr. Spruce's Letters from South America.

Notes on the Botany of Jamaica. By Dr. R. C. Alexander.

Botanical Information: Orchidaceæ found in Assam, &c. The late Professor Koch's Herbarium.

Notice of Macfadyen's Flora of Jamaica, second volume.

Contents of the 'Botanical Gazette,' No 21, September, 1850.

Some observations on the Herbaceous Rosaceæ. By T. Irmisch. [From the 'Botanische Zeitung.']

On *Sagina apetala* and *S. ciliata*. By Charles C. Babington, M.A. [The Author contends that these are two distinct species, and that both are also distinct from the true *S. maritima*. Unfortunately, his descriptions and arguments are here expressed in language more than usually obscure and ambiguous; so that his readers are left to discover his views, &c., rather by guessing what he intended to say, than by reading literally what he has written. We could wish much that so good an observer would learn to express his observations more clearly with the pen; for his 'Mastership of Arts' most certainly does not yet extend to any mastery in the art of writing clearly. In order to show that our own stricture upon his pen is simply critical, and not (as sometimes alleged) hyper-critical, we will tax the patience of our Phytological readers by citing a short passage in illustration, but selecting one which will at the same time convey some botanical information, *if* or *when* understood. After stating the points of distinction between *Sagina maritima*, and the other two species above mentioned, Mr. Babington adds that,—

"There is another plant usually called *S. maritima*, in England, *which* is the *S. debilis* of Jordan, and the *S. maritima* of Grenier, *which* may very probably be a maritime state of *S. apetala*, but differs

from *it* by the much greater size of all *its* parts, *its* awnless leaves, *its* sepals not spreading from the ripe capsule, and equalling, or slightly exceeding *it*. *Its* capsule is of the same form, *its* mode of growth is apparently similar, and *its* leaves are sometimes bluntish, and in other instances have a long apiculus."

What are the grammatical antecedents to the second "*which*" and first "*it*" of the passage quoted? Through the want of a conjunctive word, we are left in the uncertainty of two antecedents for the former; while the grammatical antecedent of the latter is certainly the "maritime state" of *S. apetala*, which cannot be intended by the writer. Then we have five repetitions of the pronoun "*it, its, its, its, it,*" all in one sentence, though apparently intended to refer to three different objects or antecedents, which are confused together through this use of the one ambiguous substitute for their names. Next follow the halves of two comparisons, both meaningless, because neither of them is completed by any mention of the object with which "*it*" is to be compared. But, if we rightly guess at the Author's meaning, it may be conveyed without confusion or ambiguity, and still nearly in his own words, by changing the grammatical construction of the passage; and supplying the omissions, thus:—

"There is another plant usually called *S. maritima* in England, which is the *S. debilis* of Jordan, and the *S. maritima* of Grenier, and which may very probably be a maritime state of *S. apetala*; but it differs from the ordinary form of that species by the much greater size of all its parts, by its awnless leaves, and by its sepals not spreading from the ripe capsule, which they equal or slightly exceed. Its capsule is of the same form as that of *S. apetala*; its mode of growth is apparently similar to that of the same species, its leaves are sometimes bluntish, and in other instances they have a long apiculus."]

Literature: Thurmman's *Essai de Phytostatique*. Payer's *Botanique Cryptogamique*. Contents of botanical journals.

Proceedings of Societies: Linnean Society. Microscopical Society. Botanical Society of Edinburgh.

Miscellanea: Record of Localities. Morphology of Grasses.

On the appearance of Atriplex hortensis, Linn., near Worcester.

By EDWIN LEES, ESQ., F.L.S.

As I was strolling the other day with a friend along the embankment of the Oxford Railway, at Tallow Hill, near Worcester, which has been lying abandoned and neglected for the last three years, I noticed among the rank weeds growing about, a queer looking plant unknown to me in fructification, which I at first took for some species of Dock. There was plenty of it, so I carried one off, and found on examination at home that it was an *Atriplex*, and it turns out to be *A. hortensis*, *Linn.*

It is characterized by its very large green reticulated and entire perigynes, devoid of all tubercles or scaly granulations, though its foliage is as "frosty" as any others of this puzzling tribe. Dr. Bromfield has mentioned it as occurring in a wild habitat on the coast of the Isle of Wight (*Phytol.* ii. 330); but as at present no place is assigned to it in our Floras, at the dagger's point (+), I am unaware to what extent it may have been noticed by other botanists. At all events, this is its first recorded appearance in Worcestershire. If we are to have any migratory or uncertainly occurring plants at all in our floras, I can see no good reason why this should not possess a nook in a British list, as it does in the '*Flora Gallica*,' from which work I subjoin the following short account of it.

"*ATRIPLEX HORTENSIS*, Linn. Sp. 1493; Dod. Pempt. 615; Blackw. Herb. t. 99, et 552; *A. domestica*. Matth. Valgr. 459; *Arroche*, *Bonne-dame*.

α. caule herbaceo erecto, foliis oblongo-triangularibus subdentatis, floribus racemosis axillaribus terminalibusque, calycibus seminum ovatis reticulatis acutiusculis integerrimis.

β. *A. hortensis rubra*. Bauh. Pin. 119.

Flores subherbacei, Junio. In horticis et olivariis colitur.*

This *Atriplex* appears to have been an old olivary herb, though I should think, worn out and almost entirely forgotten in this country, whatever charm it may still hold upon continental cultivators of vegetable condiments. I have no recollection of observing it anywhere in our town or village gardens, though doubtless it must have lain neglected *somewhere*, and is now coming up to present its claims again.

* *Flora Gallica*, seu Enumeratio Plantarum in Gallia spontè nascentium: auct. J. L. A. Loiseleur Deslongchamps, tom. i. p. 218.

As our ancestors had it probably on their plates, we must now take it up as literary diet.

I should remark that the spot where I noticed the *Atriplex hortensis* to be rather plentifully growing, is *made ground*, raised upon pasture land, forming, in fact, the foundations and plateau of the intended Railway Station, and the materials of earth and rubbish cannot have been brought from any distance, as a cutting commences a short distance from the spot. The seeds have perhaps lain undisturbed for many years, till the shifting and upraising of the soil has enabled them to exercise their vegetating powers.

EDWIN LEES.

Henwick, near Worcester,
Sept. 16, 1850.

On the occurrence of Lobelia urens in Kent.

By WILLIAM THOMSON, ESQ.

A living specimen of this rare plant has just been presented to me by the Rev. J. Dix, of Charing. It was found by Mrs. Dix in a wood near Ashford, on the 27th of August last; and since it is usually supposed to be a Devonshire plant, its discovery in the county of Kent may be deemed worthy of record. Mr. Dix informs me that the plant grew about a yard from the path in a chestnut wood, which had been cut down; that it was in full vigour, and that its centre formed a superb spike of flowers. He adds, that there is no apparent possibility of its having been placed there through man's instrumentality.

W. THOMSON.

Foxley Road, Kennington,
Sept. 10, 1850.

New Station for Mentha sylvestris in Glen Ogilvy.

By W. M. OGILVIE, ESQ.

IN the early part of last season I had the pleasure of meeting with *Mentha sylvestris*, in the Den of Glammis, on the north side of the stream that runs through it, and about half a mile from its entrance. Circumstances prevented me from visiting the station at the time recorded for its flowering. Being in the same locality the other day, I

intended to have visited the station to see if there was any appearance of its flowering, had I not met with it in Glen Ogilvy, on the banks of the same stream, but about three miles further east than the Den of Glammis. At the time of my revisiting this place, the 8th and 9th of August, it was in full flower. I walked along the banks of this stream for about half a mile and found it in various spots on both sides, and I have little doubt, from its appearance, that it may be found as far up as the source, among the Sidlaw Hills. The place, however, where it seemed to be in greatest profusion, was that part of the stream in front of the farm house of Kilmundy, from which it is separated by about a field's breadth, here it was in so great profusion that I might have gathered a thousand specimens in a few minutes. In the January number of the 'Phytologist,' for 1849, there is 'a note on, and query by my friend Mr. Lawson, respecting the flowering of the *Mentha*,' at the station recorded for it in the 'Flora of Forfarshire,' viz., 'side of the new Glammis road, where it emerges from the Sidlaw Hills into Glen Ogilvy.' Mr. L. had walked a distance of eleven hundred miles to see it in flower, but was disappointed, and from this, as well as from its growing only by the roadside, he seems to have some suspicion of its being native: he will therefore be glad to observe the record of another station where there can be little doubt of its being native, and where it flowers freely. I see no reason, however, to doubt its being native even at the roadside station. The road was made, I believe, about forty or fifty years ago, and at this place was made through a waste moor; even yet the sides of the road are lined with heath and broom, among which the *Mentha* in some places is growing, and which seems to have been as little touched with the spade as the moors and waste grounds around. I passed this station on my way to Dundee, and was pleased to observe, that, even here, it was in flower, but sparingly. It is rather a strange circumstance that it should never have been observed in flower at the road-side station by any of our local botanists. Mr. Lawson mentions that the late Mr. Jackson never found it in flower, and I have seen none who have previously observed it. The late Mr. Drummond, however, must have gathered it in flower, from the remark made on it in 'Hooker's Flora.' This season has been remarkably dry in this part of the country; can this have had any effect on its flowering?

My own observations on the subject coincide with those of Dr. Bromfield, in the February number of the 'Phytologist,' for 1849. "I apprehend," he remarks, "that *Mentha sylvestris*, like many other

plants of its order, has a great tendency to exhaust itself in root, and that whilst in some of its stations it may be induced to flower freely, in others, circumstances rather favour its propagation by the creeping rhizoma." The plants at the road-side station were dwarf and very much scattered, sending up only here and there flower stems, while those by the side of the stream were tall, robust, and much thicker clustered together. I shall be happy to supply specimens to any of your readers with whom it may be a desideratum.

WM. M. OGILVIE.

Castle Street, Dundee, Sept. 18, 1850.

Botanical Notes, the result of a visit to Glamorgan and Monmouthshire, in the latter part of July and beginning of August, 1850.
By JOSEPH WOODS, ESQ., F.L.S.

MOST botanists who have attended much to the species of *Rubus*, form their idea of what constitutes a species rather from the general habit, than from particular characters, and where there are no clearly marked and uniform characters, this is perhaps the only way of forming correct opinions. But however indispensable as a beginning, it is only a beginning. It is true that what is called habit is formed by the combination of many small particulars, but these are so numerous, so indistinct, and often so inexplicable, that it is impossible for one man to communicate to another his perception of habit; and his knowledge, as far as that is concerned, dies with him. No two persons arranging a collection of plants by the habit alone, would distribute them into the same set of species. Similar plants must be put together, but then some definite characters must be elaborated from their comparison. This comparison then of character with habit is the great desideratum of the botanist in the formation of species, and particularly important in the species of *Rubus*, and it is an object which I have kept in view in making the following observations. Besides the close affinity between the species of this genus, and the variations to which they are subject, there are some further difficulties in the way of forming a correct idea of the habit of a bramble. The species grow mixed and entangled together, and the habit is obscured. The mode of growth too is adverse to our studies. The root sends out a shoot one year, which bears flowers in the next, when the leaves had all disappeared. At the same time it puts forth new shoots, but growing as it usually does, in hedges or among bushes, it

is not easy to determine with certainty whether the old flowering stem and the new leafy shoot proceed from the same root. Add to this, that where the root spends itself in making a great number of flowering branches, it is very apt to neglect forming new shoots; and *vice versâ*, when the new shoots are strong and numerous, the flowering branches are apt to be deficient, so that it is no uncommon thing to find the shoots of one species and the flowering branches of another, almost exclusively in the same bush.

My first station was at Sketty in the neighbourhood of Swansea. The species most abundant there are *R. discolor*, *R. cordifolius*, and *R. Koëhleri*; the scarce one *R. macrophyllus*. These are all tolerably distinct in their general appearance. *R. macrophyllus* is rather more prickly than it usually is in Sussex; but even with us the character is variable. *R. cordifolius* is almost exclusively the variety with narrower leaflets, and a stem more or less hairy, *i. e.*, it is the variety considered by Dr. Bell Salter to be at once the *R. sylvaticus* and the *R. villicaulis* of the 'Rubi Germanici.' In the 'Tourist's Flora,' I have followed Babington, in making *R. cordifolius* the typical form. I am now almost inclined to repent of this, since, though *R. cordifolius* be the common variety in the south and east of England, the var. *R. rhamnifolius* seems to be the most widely diffused. The leaves are elliptic or somewhat rhombic, or perhaps obovate and acuminate, with or without a slight indentation at the base, but not truly cordate.

On the borders of the Crwmllyn Bog, I observed a still more woolly plant, which I at first thought might belong to *R. cordifolius*, but the leaves have underneath something of the glittering appearance of *R. leucostachys*, with which I am now disposed to join it. It has the mixture of a few smaller prickles. *R. radula* occurs in the same neighbourhood.

At Horton, on the borders of Gower, and, I believe, on the limestone, I noticed what is perhaps *R. fuscus* (according to Dr. Bell Salter, a variety of *R. Koëhleri*), but which, but for the presence of setæ, might pass for a variety of *R. corylifolius*. *R. cæsius*, is abundant on the limestone of Gower.

My next station was Pont-nêdd-vechan. *R. discolor* and *R. Koëhleri* are here abundant, and easily distinguishable. The former, however, does not ascend into the ravines, which form the character of this part of the country. Dr. Bell Salter, in his notes on *R. argenteus*, Bot. Gaz., ii. p. 151, says, that the hairs have the "opaque, lustrous tint common to the tomentosî." I do not understand this, since if I am to consider the word *opaque* as opposed to translucent, I am

quite at a loss for his character of the *tomentosi*, for the hairs amongst them seem to be individually just as translucent as those of the *Corylifolii*. The passage above cited forbids us to oppose it to shining, and besides, *R. leucostachys*, than which no species has more shining hairs, is placed among the opaque-haired species. While on this head, let me add that Dr. Bell Salter puzzles me, by describing the hairs of *R. argenteus*, as “divaricating and at the same time somewhat patent,” and in speaking (p. 147) of the figure of *R. macrophyllus*, in the ‘*Rubi Germanici*, he says, the hairs are drawn “not truly patent, but patent divaricating.” I have always understood divaricate to be patent in a very high degree. With respect to *R. discolor*, it appears to me that the closeness of the pubescence does not depend on its being adpressed, but on its being stellate and very short. Another incorrectness, and in which I confess I have been a participator, is in describing the *margin* of the leaflets as bent down. The curve is longitudinal, slightly modified by the somewhat wavy nature of the margin. Let me add, in making these remarks, that I am very sensible of the great merit of this paper, which I think is a considerable step forward in our knowledge of this intricate genus.

R. rhamnifolius is also common about Pont-nêdd-vechan, and as before, usually hairy, so that I have sometimes found it difficult to draw a line between it and *R. leucostachys*. When the hairs are very numerous it is difficult to determine whether the stem beneath is polished or not. Sometimes, however, its red polished stems are very conspicuous. At other times it shows a tendency to produce over-lapping leaflets. The prickles on the old stem are sometimes few and small, while those on the young shoots are large and numerous, showing that in different years, or at different seasons, a different degree of prickliness is produced.

Dr. Bell Salter joins *R. villicaulis*, β . of Babington’s [first] edition, to *leucostachys*, and Babington in his later edition has joined *R. villicaulis* altogether to *R. leucostachys*. I am not inclined to dispute this decision, but I observe here two forms which apparently belong to this species, the first has a lengthened panicle, generally furnished with one or two simple cordate leaves, lilac flowers, and a stem with few or none of the smaller scattered prickles. The other, with a shorter, leafless panicle, white flowers, and a much greater proportion of smaller scattered prickles. The young shoots also, in the specimens I have brought home, exhibit few setæ. The latter form is very common among the hills of Glamorgan and Monmouthshire, the first is comparatively scarce.

Rubis saxatilis occurs occasionally in the narrow valleys above Pont Nedd vechan, and *R. suberectus* soon after leaving the Merthyr road, in order to ascend Pen-y-Craig. I did not see *R. plicatus* anywhere in Wales.

From Pont-nêdd-vechan I went to Pyle, hoping to find something among the Rubi of the magnesian limestone; but I was disappointed. *R. discolor* grows very luxuriantly near the little stream. Some of the flowering branches must have been above five feet long, of which the branched panicle occupied at least two.

My next station was Sully, south of Cardiff. Here *R. cæsius* is abundant, as it is in Monmouthshire, and often without hairs or setæ, apparently the *R. tenuis* of Babington. A somewhat remarkable form of *Rubus* with some resemblance to some of the forms of *R. corylifolius* is found along the shore. The stem is slightly hairy with stellate hairs, like those of *R. discolor*, but with a mixture of single hairs, each tipped with a gland. The stem has a tendency to be pruinose. It suggested to me the idea of its being a hybrid between *R. discolor* and *R. cæsius*, both of which are common in the neighbourhood.

At Caerphilly I saw nothing among the Rubi different from what I had already observed, and having hurt my foot I could not scramble much after them. At Newport, I observed two forms which seemed to deserve notice. One had the pubescence and nearly the panicle of *R. discolor*, but the stem on the old shoot had eight slight furrows, instead of as usual, being five-sided, and that on the new shoots was armed with very unequal, but not very numerous prickles. I cannot pretend to assign a name to it. The other is, I think, distinctly *R. hirtus*, and I met with it again at Ragland and at Monmouth. At Ragland also I met with a *Rubus* with a hairy stem, and nearly equal angular prickles, but differing from *R. rhamnifolius* and *R. leucostachys*, in having uniformly, at least as far as I could trace it, only three narrow leaflets. The panicle is hardly corymbose and the prickles are nearly straight. With respect to the last character, it is to be observed, that when a branch is preparing to take root, sometimes even before any fibres are thrown out, the direction of the prickles and leaves towards the extremity is reversed, and next to these we find the leaves set on horizontally, and the prickles which ought to be deflexed or recurved, are horizontal and nearly straight, as if nature had not determined which way she should turn them.

At Monmouth, besides the plants already mentioned, I gathered a setigerous *Rubus*, with a very widely-spreading and leafy panicle. Perhaps a variety of *R. Radula*, and another which agrees pretty well

with Babington's description of *R. Schleicheri*. At the foot of the Wynd Cliff there is a form of *R. corylifolius*, with few and comparatively small prickles, and generally only three very broad and overlapping leaflets. I noticed, at Farnborough, a plant with a similar general habit, but more prickly, and with five, or sometimes seven broad overlapping leaflets.

I cannot say that in this investigation I have advanced much in forming a conception of the distinct habit of the Rubi, or of connecting it with character; on the contrary, like the green track over the moors described by Scott, I have sometimes lost, on a nearer approach, distinctions which seemed to be sufficiently evident at a distance: yet it first seems essential. To have to examine in detail every bramble one meets with, before we can form an opinion of the species, requires a patience almost superhuman, and without some definite notion of habit, this is unavoidable. *R. discolor* is generally very distinguishable, yet about Newport I could not always separate it in its general appearance from *R. rhamnifolius*. *R. rhamnifolius* is usually in the form *sylvaticus*, and not always readily told from *R. leucostachys*. In Haddock Wood, near Monmouth, I observed two shoots growing side by side, in form, colour, and general appearance exactly alike. On examination, one belonged to *R. rhamnifolius*, while the multitude of setæ on the other obliged me to refer it to *R. rudis*. The flowers in the bush seemed all to belong to one species, and as the panicle was setigerous and the flowers white, I concluded them to belong to *R. rudis*. In the second form of *leucostachys*, as exhibited at Pont-nêdd-vechan, there is a sharpness in all the parts which catches the eye, and the calyx is spreading and star-like immediately after flowering, though it seems to become reflexed in the fruit, but these appearances were less evident in other places. I have thought that I knew *R. Koëhleri*, but some of its varieties have in a general view so close a resemblance to some of those of *R. Radula*, and perhaps to some other setigerous species, that I have learnt to doubt my knowledge. In *R. corylifolius* the degree of overlapping in the leaflets varies very much, yet it must be reckoned one of our best marked species.

Beyond *Rubus* I have little to say. *Œnanthe Lachenalii* is the usual *Œnanthe* of the marshes in these parts, and not *O. pimpinellifolia*. The *Statice* of the rocks is *Dodartii*. In *Armeria maritima* the tube of the calyx is not "uniformly hairy," but there is an intermediate line of hairs between the nerves; this I have observed also in Sussex. *Fœdia Auricula* grows in Gower, near Norton, and more

abundantly in some barren fields near Ragland. I acknowledge that the plant exhibits in other particulars the closest resemblance to *F. dentata*, especially to the variety *F. eriocarpa*, but I cannot persuade myself that so marked a difference in the fruit is of no value. The *Valeriana* of the valleys is *V. sambucifolia*. The leaflets are four or five pairs, with a trifid terminal leaflet. Near Monmouth I sometimes found five or six pairs with a quinato-pinnatifid terminal leaflet. The cup from which the processes of the calyx arise, is sometimes fully as wide as the widest part of the conico-ovoid seed, at others it is divided quite down to the base. The rhizoma is sometimes almost perpendicular, exhibiting one set of fibres above the other; but I did not notice this in any flowering specimens, and in such cases the lower root, not the upper, sends forth slender runners. The upper is probably the production of the year, instead of a flowering stem, and it would flower, and send out runners the next year. Independent of this descending rhizoma, there are, both for the flowering and barren plants, superficial runners, often very numerous, producing in their course pairs of scales, and sometimes a single leaf; but I could not see any pairs of leaves, except at the end, where the fibres of a new root were produced.

Triticum caninum, which, I think, is not mentioned in the Botanists' Guides, grows near Pont-nédd-vechan, both on the Purthin and on the little Nêdd, and there are several tufts of *Gnaphalium margaritaceum* below the Dinas Rock, a large limestone rock rising abruptly at the head of the open valley. *Lepidium Smithii* grows at Pont-nédd-vechan, and at Pont Walby. At the latter place, and, I believe, at Cil-Hepste, there is a curious form of *Equisetum*, perhaps of *E. arvense*, in which the lower branches are subdivided, sometimes even producing secondary whorls. It has the long terminating division of the frond which has been noticed in *E. umbrosum*, with which in other respects it does not well agree. Its situation on wet banks, or in the spray of a waterfall, is very different from that in which we usually find *E. arvense*, and it may perhaps prove a distinct species. *Orobanche Hederæ* grows at Penrice and at Sully. *Genista Anglica*, which I do not see mentioned in the 'Botanist's Guide' for Glamorgan, grows at Rhydgroes, near the station of *Rubus suberectus*. Mr. Watson in the Bot. Gaz. i. 59, has given a list of plants not very rare, but not hitherto recorded in the botany of South Wales. Of these *Radiola millegrana* occurs on the ascent of Cefn Brin, in Gower; and *Silva pratensis* is common on the bog in the eastern part of the county.

Near Pyle, among the sand hills on the shore, is a large pond,

called Kenfig Pool, which used to be celebrated for its pike, and which also contained a multitude of roach, serving as food for the pike, but whence of late years both pike and roach have disappeared without any apparent cause. I found nothing in the pool, but my friend Mr. Moggeridge has sent me lately some fragments of a *Potamogeton*, which, from the appearance of its seeds, I suspect, may be *P. trichodes*, at least they seem different from those of any acknowledged British species. In a moist hollow in this pool, growing on the sand with *Erythræa pulchella* and *Centunculus minimus*, there was a considerable quantity of what, from the description, appears to be the *Myosotis multiflora* of De Candolle. All the specimens I at first gathered seemed to be strictly annual, but on returning to the spot, I found in many plants traces of a descending rhizoma, and a second bundle of radical fibres, indicating the plant to be, sometimes at least, biennial. I suspect it to be a variety of *M. palustris*, without, however, relinquishing my opinion that it is the *M. multiflora* of the 'Prodrômus.'

On a large limestone hill, near Pyle, called Newton Down, there is a great abundance of *Ulex Gallii*. There it keeps itself distinct from *U. nanus* by its habit; but about Monmouth intermediate states may be seen. The wings are very nearly equal to the keel in length²; in individual flowers sometimes a very little longer (perhaps thirtieth or fortieth of an inch), when flattened against it, but this was not the usual case, and in the natural state the curve of the wings makes them appear shorter. Before the parts are fully expanded, the point of the keel sometimes does and sometimes does not project above the wings. In returning homewards, I examined the *U. nanus*, on the heaths about Farnborough, where the plants are smaller and slenderer than any I had seen in Monmouthshire; but the heaths there are periodically pared for fuel, and neither heath nor furze can grow to any size. In these also I should have described wings and keel as of equal length, but the former are now and then a very little shorter; they are always, however, narrower than the keel, which, before their full expansion, projects sometimes above and sometimes below them. On Ashdown Forest the wings are sometimes a little longer than the keel. Both *U. nanus* and *U. Gallii* have frequently flowers near the ends of the branches, as described in *U. strictus*, but their usual position in both is near the base of the primary spines, and never, as in *U. europæus*, scattered more than half along their length, or on the secondary spines.

I add the position of a few plants which have not yet found their

way into the 'Botanist's Guide.' *Aconitum Napellus*, is, as I am told by Mr. Mr. Moggeridge, abundant on some bushy ground near Llanbrissant. *Senebiera pinnatifida* is found about most of the sea ports. *Cardamine impatiens* and *Dipsacus pilosus* are not uncommon along the Wye. *Brassica oleracea*, without a seed in the beak, is plentiful on the marl cliffs of Barry Island. *Diploxys muralis* is common about Swansea. *Erucastrum monense* at Nicholaston, in Gower. This was found by Mr. Borrer also at Merthyr. When Dillwyn's 'Botanist's Guide' was first published, *Matthiola sinuata* used to be found in several places among the sand-hills of the shore. Afterwards it disappeared. Two or three years ago it again showed itself, but has again disappeared. The corporation of Swansea, it seems, sometimes take turf from the sand-hills and replace the soil with some they want to get rid of from the neighbourhood of the town, and in these spots I noticed *Calendula officinalis*, *Koniga maritima*, *Delphinium consolida*, a cultivated *Pimpinella*, and other garden plants. This could hardly be the origin of the *Matthiola*; but I suspect that it has produced the *D. consolida*, noticed by Mr. Lees, at least I neither saw nor heard of the plant except in such situations. A more curious instance of incipient naturalization was exhibited a few years ago in the *Yucca gloriosa*, a root of which was cast on the shore of Cromlyn burrows. It established itself there, sending out suckers, and for some years seemed quite disposed to be permanent, till a storm buried it under a heap of shingle. *Sagina maritima* grows at Porth Cawl. *Althæa officinalis* in Barry Island. *Lavatera arborea*, is I am assured, wild in two places on the coast of Gower. *Hypericum dubium* is common among the hills both in Glamorgan and Monmouthshire. I see Mr. Bennet considers the plant he found on the Wye to be *H. maculatum*; mine seemed to be the common form of *H. dubium*, without any approximation to the characters of *H. quadrangulum*. *Hypericum montanum* in woods on the Wye. I observed a single plant of *Melilotus arvensis* in a clover field at Sully. *Rosa systyla* occurs in Gower. *Oenothera biennis* in Barry Island. *Sedum sexangulare* was found by Mr. Motley at Bwlch Afen, a name I do not find in the map, but it is stated to be in the upper part of the valley of the Glamorgan Avon. It has since been sought for in vain. *Carum verticillatum* is frequent in boggy meadows about Swansea and Neath, and as this has long been well known, I wonder how it escaped from the first 'Botanist's Guide.' *Galium tricornu* grows in Barry Island. *Inula Helenium* in several places in Gower and about Sully. *Veronica Buxbaumii* I saw at Lavernock, a very out-of-the-way place for a stranger. *Mentha ro-*

tundifolia is to be seen near Taaswell, and is common about Monmouth. Calamintha Nepeta at Caerphilly. Leonurus cardiaca abundantly at Kenfig. Atriplex Babingtonii on Sully Island and on the coast by Barry Island. Empetrum nigrum near Pont-nêdd-vechan. Euphorbia stricta at Tintern. Scirpus Savii on the sands at Oxwich and Porth Cawl, on the hills at Cefn Bryn, and Pont-nêdd-vechan. Carex lævigata near Oystermouth. Gastridium lendigerum at Pennarth. Agrostis setacea on Cefn Bryn and on Newton Down. Festuca uniglumis on the sand-hills in several places.

The botanist in Glamorganshire will look in vain for many plants which are found in similar situations in Yorkshire. Here is no *Primula farinosa*, no *Geranium sylvaticum*, and the *Sesleria cærulea* so abundant on the limestone of Yorkshire and Westmorland, and which reappears on the chalk hills of Rouen, refuses to grow on the limestones of South Wales, as well as on the downs of Sussex.

JOSEPH WOODS.

Lewes, Sussex, September, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 1041).

Carex Bœnninghauseniana.* On the margins of little shaded pools, in woods and thickets, chiefly on a clay soil, very rare? In Quarr Wood, near its western extremity, and on the sea-side of the main path among the thick brushwood, principally by the little pools or plashes in the hollow part of the copse, not far from the shore, in great plenty, June 15, 1843. Taken when first gathered for the following species, but pronounced on very competent authority to belong to the present. I must candidly own to feeling great difficulty in rightly understanding the difference betwixt these two alleged species, and have now lost the slight clew I once thought I possessed to distinguish them apart and on paper. The very limited time left me before taking my departure for the East, precludes me from entering on the

* Named after C. M. F. von Bœnninghausen, author of the 'Prodromus Floræ Monasteriensis,' 1824; the spelling ought therefore to be as above, not Boenninghauseniana, as it is frequently written.

discussion of this intricate subject at present. I shall therefore content myself with copying from my MS. descriptions of Hampshire plants that of *C. Boenninghausenia*, drawn up June 16, 1843, from a large bundle of fresh specimens gathered in the locality above mentioned.

C. Boenninghausenia, *Kunze*, Suppl. der Riedgr. p. 86, t. 22; Fl. Dan. xiv. t. 2300 (good representations both of our Vectian plant); E. B. Suppl. iv. t. 2910 (spikelets much darker than with us, and on the whole less characteristic than the two figures just quoted).

Plant growing in large tufts. *Root* creeping, cespitose and fibrous. *Culms* numerous, erect or inclining, spreading or radiating from the centre of the tuft, from one to two and a half, three, or even four feet in length, rigid, slender and striated, but stouter, firmer and much more acutely angular than in *C. remota* (to which, as to *C. axillaris*, this plant betrays a strong affinity), and especially so at and near the summit, below the inflorescence,* where the angles are very sharp and scabrous, and to a much greater distance downward than in that; in the middle and lower part quite smooth, the faces rather convex; leafless for a considerable distance from the top. *Leaves* linear, bright pale green, the superior ones narrow, as long or longer than the culms, more usually shorter, about one to one and a half line in breadth, flattish, or at least much less channelled or concave than in *C. remota*, very acutely pointed and tapering, with triangular, scabrous points; rough along the edges and keel for about half their length downwards; those towards the base of the culm very greatly shorter than the superior leaf, the lowest of all shorter even than their sheathing bases. *Spike* terminal, simple, much shorter for the size of the plant than in *C. remota*, from one and a half to three, four or more inches in length; rachis straight, with three very unequal faces, one of them much broader than the other two (hence appearing at first sight two-edged†), the angles very acute and rough, with cartilaginous serratures. *Spikelets* sessile, ovate or ovate-lanceolate, acute, the two lowermost considerably distant from each other, but less so than in *C. remota*,‡ the

* In *C. remota* the culm is quite smooth or very slightly rough only to the lowermost bract, the rachis only of the spike being scabrous, as is truly remarked by Goodenough.

† One of the angles is often smooth, and so obtuse and indistinct as very nearly to render the rachis acipital.

‡ The comparison is here all along made with *C. remota*, and not with *C. axillaris*, under the impression that the latter was the plant before me whilst drawing up the description.

third and even sometimes the fourth from the bottom tolerably wide apart, and all more or less compound at their base, sometimes (though rarely?) simple, their spiculæ more or less spreading; subterminal spikelets approximate, the terminal crowded, smaller and more pointed than the basal, and simple. *Bracts* subulate, foliaceous, erect, very rough on the margin and keel, with trigonous points, the lowermost bract always much longer than the rest, and generally overtopping the spike, often quite as long as in *C. remota*, the remaining bracts always as remarkably shorter than in that species, the inferior bracts not reaching the summit of the spike, those still higher reduced to mere subulate points of their broad, glume-like bases, and below the crowded terminal spikelets scarcely distinguishable from the glumes themselves; in these respects agreeing with *C. divulsa*, to which, although sufficiently distinct from both, our present plant and *C. remota* bear a considerable degree of resemblance. *Glumes* ovate, acute and even mucronate, membranous, at first greenish and silvery, finally pale tawny, and having a broad, tapering, bright green keel, and a central, pellucid, often roughish nerve continued to their apex. *Staminate florets* in all my specimens apparently few at the base of each of the lower spikelets, often scarcely any, one or two occasionally in the centre or upper part of them; more numerous in the terminal and subterminal spikelets, which are sometimes wholly staminate or nearly so. *Anthers* bearded or spinulose at the tips. *Styles* two, long and tapering. *Perigynes* substipitate, nearly erect (not spreading), ovate-lanceolate, tapering (not rounded) at base, plane in front, slightly convex at the back, with several prominent ribs; mostly about as long or longer than the glumes, gradually narrowed into the green, rough-edged, rather deeply cloven beak. *Nut* broadly ovate or ovate-elliptical, much compressed, smooth, tapering into a short cylindrical point, on which the persistent style is apparently articulated; seldom, it would seem from Kunze's observations and my own, perfected.

The foregoing description will enable any one to judge in what respects *C. Boenninghausenia* differs from *C. axillaris*, from which I feel myself at present quite incompetent to disentangle it in figures, description or dried specimens. The plant pronounced to be *C. Boenninghausenia*, from Quarr Copse, and described above, has to my eyes little or no resemblance to *C. paniculata*, if we except its densely cespitose habits of growth, but the figure in E. B. Suppl., and a plant in St. John's garden at Ryde, from Mr. Borrer (from the original Hertfordshire station, if I mistake not), do in the darkness of the

glumes and disposition of the spikelets bear some resemblance to *C. paniculata*, whilst the Isle-of-Wight plant agrees well with the figures of Kunze and the 'Flora Danica' in the paler, more tawny hue of the glumes, and shorter, broader, less spreading spikelets.

Carex axillaris. In similar localities with the last, also in damp hedgerows, moist copses and marshy places, but rarely, nor am I at all certain that some of the few subjoined stations may not belong rather to *C. Boenninghausenia*. First found by me on the margin of a little pool in Apley Wood, by Ryde, May 28, 1837. In Church Lane, Binstead, under the boundary fence of Quarr Copse, June 18, 1843, with *C. remota*, its very frequent companion. In tolerable plenty in the Parsonage Lynch, Newchurch, also with *C. remota*, July, 1843. Damp spot in Saltern Copse at Norton, Freshwater, June, 1849. A large tuft of this or the last species by the stream just above the mill at Sheet, near Petersfield, Aug. 19, 1849. How far all these stations belong to *C. axillaris* I feel quite unable to decide, even from the dried specimens before me, it being as well to confess the truth, that the slight distinctions between *C. axillaris* and *Boenninghausenia* which I once thought I perceived and understood, have vanished on renewed examination, after some years' neglectfulness of the subject.

Carex remota. In wet or boggy woods, thickets, and under damp hedges, &c.; frequent in the Isle of Wight, and I think not less so in the county at large. Common about Ryde, in Quarr Copse, and in the lane that intersects the Newport road between Binstead and Ninham (Binstead Cross), along with *C. divulsa*. New Copse, near Wootton Bridge. Yarbridge, particularly about the swampy pools in Marshcombe Copse, very plentifully, as it is also in a boggy copse close to Prestwood, near Ryde. Abundant in Cleveland Wood, Apuldurcombe, and various other parts of the island. By the roadside just out of Christchurch, towards Sopley, in plenty along the right hand hedge for a considerable distance. Titchfield road, Puxol Lane (with *C. divulsa*), Mr. W. L. Notcutt. Noticed by me in various parts of mainland Hants, but the species is of too general occurrence to make a further enumeration of stations necessary. Sometimes covering the soft, black mud (humus) in our deep, boggy woods with its dense, spreading tufts. Culms much less triangular than in its near allies, the two preceding species, one angle chiefly being prominent, the others rounded off or nearly obsolete; smooth, except quite close to the summit.

C. elongata may be expected to occur in Hants; it has been found copiously in one station, if not more, in Surrey, although principally distributed in the midland counties of England.

Carex stellulata. In boggy, marshy places, wet woods, meadows, and on moory, heathy ground; very frequent over the entire county. Abundant on the skirts of Lake and Blackpan Commons, and elsewhere near Sandown. Plentiful in New Copse, near Wootton, and on Bleak Down. Abundant in boggy meadows about the Wilderness, Rookley Moors, &c., and equally frequent on the mainland.

Carex curta. In bogs and marshes, sides of pools, ditches, &c.; apparently very rare in Hants, and known to me as yet only in the Isle of Wight. Observed to be extremely abundant almost everywhere in Rookley Moors and about the Wilderness, where I had previously detected it in more limited quantity, June 17, 1844.

Carex ovalis. One of the more frequent species of *Carex* in this island and county, over which it seems very generally, though not copiously, dispersed in boggy, marshy places, damp meadows, on wet heaths, commons and pastures. On Stopler's Heath, by Newport. Ashey Common. Heathy ground between Quarr and Ninham. Easton Marsh, Freshwater. Frequent in many parts of Sandown Level, and abundant on the boggy parts of Lake Common. Plentiful in moory ground between Perretton and Horrington, and profusely in moist pastures about Rookley Farm and the Wilderness, 1842. In meadows near Newchurch, towards Haseley. On Bleak Down, in several places, and elsewhere in the island. On Gurnet Common, and by the Medina above E. Cowes, Miss G. E. Kilderbee. Met with by me so frequently in mainland Hants that I have neglected noting down special localities. By Durley Wood, near Bishop's Waltham. Frequent at Fisher's Pond, between Twyford and Bishop's Stoke, and various other places. Fareham Common, Mr. W. L. Notcutt.

Carex vulgaris (*C. Goodenovii*, *Gay.*, *C. cæspitosa*, *Sm.*). Not unfrequent in wet meadows, sides of ditches, ponds and other swampy or boggy places in the Isle of Wight, and possibly equally dispersed over the county, although I have no locality to cite for this most variable species on the mainland. In Sandown marshes. In a boggy meadow at the upper extremity of Brading Harbour, plentifully. In Alverstton Lynch, and between Newchurch and Alverstton, frequent. Bog at Cockleton, Miss G. E. Kilderbee !!! *Var. β.* Leaves extremely narrow; in Sandown Level, on the skirts of Lake or Blackpan Commons, and elsewhere. *Var. γ.* Pistillate spikes small, much abbreviated, ovoid-oblong, pointed, perigynes very dark and broad; marshy

meadow at Freshwater Gate, June 17, 1841. Remarkable for the very short and broad spikes and the dark colour of the perigynes, which are scarcely distinguishable from the glumes in the dried state.

C. stricta (*Gooden.*) I suspect grows in several places in mainland Hants, and perhaps in the Isle of Wight. I am inclined to believe having noticed it abundantly in water-meadow ditches near Bishop's Stoke and elsewhere, but to have passed it by for a tall form of the last, or for the following, to both of which it seems to be nearly, perhaps too closely, allied, and is one of those species I find difficult to understand and recognize when I meet with them. I find a plant in my herbarium marked *C. stricta*, with a query, gathered in a little bog near St. Catherine's Point, June 11, 1839, but on a renewed examination am disposed to consider it as belonging to the preceding or the following species.

Carex acuta. In exactly similar places with the two foregoing, but quite rare in the Isle of Wight, and to myself equally so on the mainland of the county. In several meadows in Sandown marshes, abundantly; the last meadow but one on the right before coming to the village is full of it. By the Titchfield River, below the town, June, 1849, where it had been previously remarked by Mr. Notcutt. It doubtless grows in many other parts of the county, but I think can hardly be a frequent species with us, unless it has been overlooked by me for some of the larger states of *C. vulgaris*. In Sandown Level the glumes of the staminate spikes are sometimes of a pale reddish brown, or almost fawn-coloured. Var. β . Leaves extremely narrow and erect; perigynes ovate, acute, much longer than the very obtuse glumes. Foot of Alverstoke Lynch, May 21, 1842. Comes very near the description of *C. Gibsoni*, *Bab.*, but twice as tall. Yet the plant here is, I am convinced, a mere form of *C. acuta*.

Carex flava. By no means uncommon in boggy meadows, and wet, moory, heathy pastures, both in the island and on the mainland. Between Quarr and Ninham, near Ryde. On the marshy skirts of Lake and Blackpan Commons. Bog at Cockleton, near West Cowes. On a piece of wet land close to Little Duxmore Farm, in plenty. Abundant on the boggy parts of Colwell Heath, and elsewhere in the Isle of Wight, rather frequent. In the New Forest and various parts of mainland Hants of general occurrence. Var. β . *Æderi*, *C. Æderi*, *Ehrh.* Equally frequent, I should say, with the type. About Ryde, near Fishbourne, and Ninham Farm. Near Thorley. New Copse, near Wootton Bridge. Most profusely in moory meadows near the Grange Farm, Alverstoke (Gomer Pond), 1849. Now very generally

and properly considered a mere, and not very constant, form of *C. flava*. The E. B. figure of *C. flava* is, Dr. Boott informs me, the variety *lepidocarpa*, and that of Host (Gram. Aust. i. p. 48, t. 63) resembles, in its tall, slender habit and very small perigynes, a plant I have received from Dr. Boott, under the name of *C. Œderi*, from the Falls of Niagara, and which Dr. B. is inclined to consider distinct from the European plant so denominated.

Carex fulva. Var. β . *speirostachya*, Wahlenb. (fide Boott), *C. Hornschuchiana*, Hoppe. In damp or marshy meadows and pastures, as well brackish as fresh, in several parts of the county, often in great plenty, and mostly on or towards the coast. In the Isle of Wight chiefly found in West Medina, particularly in Freshwater, in some parts of which it abounds, as in the marsh meadows at Easton, and on the boggy ground at the upper end of Colwell Heath, towards Weston, plentifully. Observed elsewhere in damp meadows about Colwell, and in a meadow at Norton. Near Briddlesford Heath, June, 1841, the only station in East Medina I find amongst my notes. In profuse abundance in a salt-marsh meadow, amongst other coarse herbage, on the station for *Polypogon monspeliensis*, opposite Farlington Church, near Havant, July, 1849. Meadow near Winton, July, 1850. Marsh meadows near Bishop's Stoke.

Are not *C. fulva* and *C. distans* simply forms of one and the same species? The differences when fairly weighed are very slight. Both inhabit the sea coast or inland places, fresh or salt-marsh ground, indifferently. The chief differences I find to distinguish *C. distans* from *C. fulva*, are the usually more numerous and crowded and nearly erect (not, as in *C. fulva*, patent or spreading) perigynes, hence the more elongated shape of the pistillate spikes; the greater smoothness of the culms at top, that are nearly devoid of roughness; in the less pointed glumes, destitute of a pale, membranous edging; in the somewhat shorter beak; and larger and differently shaped nut, which is rather ovoid-oblong than turbinate, more attenuated at each end, with sharper angles. Good full-length figures of *C. fulva* and *distans* are seen in Fl. Dan. t. 1049, 2043, 4 and 5.

Carex distans. In muddy or marshy ground near the sea; rare, or at all events much less frequent than *C. fulva* in this county and island, nor am I quite sure that some of the earlier noted of the subjoined stations do not belong to the latter. On a piece of moist ground near the shore in Gurnet Bay. In a creek of the Medina by Medham brick-field, 1840. Abundant at Freshwater Gate, especially in the second meadow from the shore (probably *C. fulva*). Plentifully

on the beach where a small stream discharges itself into the sea, about half a mile west of St. Catherine's Point, June 1, 1842. Plentiful in a damp meadow nearly in the line between Tapnel and Wilmingham Farms, July 7, 1844. In the bog at the source of the Yar (Easton Marsh), Mr. Dawson Turner in Snookes's Fl. Vect. !!! (probably only *C. fulva*). I have no mainland locality to give for *C. distans* at present, although the likelihood of its growing on the opposite coast of Hants can hardly admit of question.

C. punctata should be looked for in the county, but judging from the characters of the species as described in books, it must require a more than ordinarily acute eye to detect it growing, since even description fails to make the distinction between it and the two foregoing species very intelligible.

Carex extensa. In muddy salt marshes and meadows by the sea, on several parts of the coast of the Isle of Wight and mainland Hants. Shores of the Wootton River. Moist, sandy ground amongst rushes on St. Helen's Spit, in some plenty. Frequent along the Yar between Norton and Freshwater, particularly amongst reeds at the edge of a copse on the east bank, a few hundred yards below the mill and near a cottage, with *Cenante Lachenalii*. Picked in a meadow near Farlington. Between Emsworth and Langston. Creek of the Beaulieu River, a little above Upper Exbury brickyard, in plenty, Aug. 28, 1850; fruit only then ripe in part, being much later in coming to maturity than in any species I am acquainted with.* Cams shore; the Salterns (Fareham), Mr. W. L. Notcutt! There are two excellent figures of this species in Host's 'Graminæ Austriaca,' i. t. 73, and 'Flora Danica,' x. t. 1709. Both these works are deserving of more frequent quotation and reference by British botanists than heretofore, for the excellence and fidelity of the plates, which exhibit in most cases full-length portraits of the tribes we are now speaking of.

Carex pallescens. In marshy (scarcely in boggy?) places; usually with us in damp or even dry woods and thickets, but by no means frequent, either in the Isle of Wight or on mainland Hants. New Copse, between Ryde and Wootton Bridge, pretty plentiful in the drier and more open parts. Abundantly in Dunnage Copse, not far from Briddlesford Farm, June 4, 1841. Stroud Wood, between

* I have indeed gathered it at St. Helen's with *nearly* ripe fruit as early as July 21, but the perigynes of most, if not all, our other Hampshire Carices have fallen off by that time, or are ready to do so, whilst those of *C. extensa* are persistent on the spikes till the close of September, and perhaps later, although the flowering season (June) is but little behind that of *C. flava* and its other allies.

Aldermoor Mill and Coppid Hall. A few specimens found in a wood near Apley, by Ryde, June, 1845, Mr. Thos. Meehan !! In a damp wood in Heckfield Park, near Odiham (the Rt. Hon. Chas. Shaw Le-fevre's). Near Alton, in Carter's Copse, by Rotherfield Park, and picked in Chawton Park. A pretty, delicate *Carex*, apparently more frequent in the north of England and Scotland than in these southern parts of the kingdom.

Carex binervis. In dry or even boggy woods, and on heaths and barren, turfey moors, not uncommon. Plentiful in New Copse, between Ryde and Wootton. Common in the dell known as Tinker's Hole, at Apse Castle. On Briddlesford Heath. Plentiful on Bleak Down. Bog at Blackpan, Dr. T. Bell Salter, 1844! Abundantly on Titchfield Common, and elsewhere remarked in the county, where it is certainly not rare on the moors and heaths. Near Hill Head, Mr. W. L. Notcutt. Closely allied to the following, between which and *C. distans* it is in some degree intermediate, though abundantly distinct from either.

Carex lævigata. In boggy or marshy places, wet woods, thickets, copses, meadows and pastures; never, I think, like the last, on very dry ground.* In very many places in the Isle of Wight. On a little piece of boggy ground by the road-side a few hundred yards before coming to Ninham Farm from Ryde, and in a boggy copse close to Prestwood. Very common in several parts of Sandown Level, and in moist woods and pastures between Apse and Ninham Farms (near Shanklin), also in Apse Heath withy-bed, and in a low, marshy spot at Apse Castle. New Copse, near Wootton Bridge, in very great abundance. Common about Calborne Mill, and between it and New-bridge. Briddlesford Copse, abundantly. Extremely common in damp, boggy woods about Newchurch, as in the Parsonage Lynch, Alverstun Lynch, wet parts of Bordwood Copse, &c., abundantly. In a marshy wood within half a mile of Combley Farm to the south-west, and on a piece of marshy land close to Little Duxmore. In

* *C. binervis* and *lævigata* are often found growing together in this island, the latter most abundantly in very wet, the former in drier situations, on heaths, &c., but like its congener, *C. binervis* may be successfully sought for in the wettest thicket or morass, and *lævigata* in comparatively dry places. In their flowering time there is a considerable difference, *C. binervis* being for the most part far advanced before *C. lævigata* begins to bloom, which is commonly not till the latter end of May, whereas the other is seen in flower early in that month, or even at the close of April. This difference in the flowering time is inherent, and not dependent on situation, since the same order is observed by the two plants when growing together under precisely similar circumstances.

great plenty in a marshy slip of ground just beyond the northern end of the willow-bed east of Bagwich Farm. Wood between Ryde and Newport, Mr. Dawson Turner in Snookes's Fl. Vect. On the mainland it is perhaps not less generally distributed. In considerable plenty on a low, damp part of Heckfield Park, near Odiham. Extremely abundant in Cranbury Park woods. Between Alton and Chawton Park, Mr. J. Woods, jun., in Bot. Guide. A handsome sedge, nearly allied to *C. binervis*, but very distinct by the lanceolate, not ovate, and mucronate glumes, longer pistillate spikes, paler and more spreading perigynes and glumes, tawny or fulvous colour of the staminate spike, and by the greatly shorter and broader leaves, of a paler green. The nut I find precisely the same in both. I have observed *C. lævigata* near Ryde subdiœcious, by the total suppression of the usual pistillate spikes beneath the solitary terminal staminate one. The anthers in this and *binervis* are spinulose at the tips, most conspicuously so in the latter.

Carex panicea. In marshy or boggy ground, on damp heaths, moors and pastures; very frequent over the Isle of Wight and rest of the county. Var. β . Perigynes more oblong, or elliptical and pointed. On the bog upon Colwell Heath, Freshwater, July 9, 1844. The rare *C. depauperata*, found near Godalming, in the contiguous county of Surrey, where, guided by Mr. Salmon, I have gathered fine specimens a few years back, may fairly be hoped for as an accession to the Hants flora, through some diligent plant-hunter of a future day. Don's alleged Forfarshire station is probably erroneous for a species so decidedly southern as this.

The pretty and mostly north-country *C. limosa*, I by no means despair of adding eventually to our Hampshire list of sedges.

Carex strigosa. In damp, wet or boggy woods, groves, thickets and copses, but not common, either in the Isle of Wight or on the mainland. In St. John's Wood, close to Ryde, but sparingly, May 31, 1840. In the wood (Monkton Mead Wood?) nearest to the sea skirting the marsh meadows behind Ryde Dover, abundantly, 1843.*

* This wood is, I believe, one of the three stations in the Isle of Wight for the very rare and curious *Clathrus cancellatus*, which has lately been found by Mrs. Griffith at Torquay, in Devonshire. The discovery of the *Clathrus* has been attributed in a most beautiful work on British Fungi, still in course of publication, by a lady, to the author of these notes, but the real discoverer was Mr. Kippist, librarian to the Linnean Society, as that gentleman detected it at Ryde, in the above wood, about the same time that my attention was called to it at Old Park, by the gardener there, when it was again observed by myself shortly afterwards in the Pelham woods, near

Profusely at the north end of Smallbrook Heath Copse, on the left side of Rosemary Lane going towards Aldermoor Heath, where it quite covers the ground by a plash or pool in the copse, requiring a damper soil than *C. sylvatica*, June, 1844. Abundantly in a moist copse a little south-west of Combley Farm, May, 1844. In a wood between Swainston and Five Houses, but not remarked in any great plenty, being confined to one spot only, June, 1845. Picked in the woods at Cranbury Park, near Winton, July, 1850. By the roadside just before coming to the bridge across the brook at the entrance to Sidmonton Common from Newtown (near Newbury), and in great abundance in a moist copse close to the said bridge, on the right hand, growing along the side of the stream and a path through the copse, June 3, 1850. Combe Wood, near Selborne, in one part rather abundantly, June 17, 1850. Hill Copse, near Placehouse (Fareham), Mr. W. L. Notcutt! Much resembling the following, but in addition to many and well-known marks of distinction, differs from *C. sylvatica* in having a hollow, not solid, stem, deciduous, not, as in that, persistent, styles, and very much broader leaves. Pistillate spikes sometimes compound at the base with us.

Carex sylvatica. One of the commonest and most universal species of the genus, to be found in almost every moist wood, copse, grove and thicket in the county and island. Affects less moist and shady places than the last. Midrib of all the glumes spinose. This is not the species Linneus had in view when he tells us, in the 'Flora Lapponica,' the Laplanders employ a carded and dressed plant of this genus as a protection to the feet against the cold of their climate, but *C. vesicaria*, as is quite plain by his reference to the above work, under that species, in his 'Flora Suecica,' 2nd edit. p. 333 (β . *Carex culmo longissimo spicis tenuibus remotis*, *Fl. Lapp.* 328). Our *C. sylvatica* inhabits only the most southerly provinces of Sweden, and is a perfect stranger to Arctic Europe, and of course to Lapland.

Carex pendula. In moist or even boggy woods, groves, thickets,

St. Lawrence, from whence I sent young plants, through Mr. Gray, of the British Museum, to the Rev. M. J. Berkeley. If the mere noticing a species in ignorance of its nature and rarity can be called a discovery, then the gardener above mentioned has a prior claim over myself to the merit of first detecting it as British; but Mr. Kippist not merely noticed it independently of us both, but recognized it as a known and described species, though new to Britain; it is to him, therefore, that the true merit of discovering *Calthrus cancellatus* in England belongs.

marshy sides of rivers, &c., also on wet, slipped land along the coast. Not rare in the Isle of Wight. About Ryde, in Marina Wood, by Apley, and in woods at the mouth of the Wootton River, on the west shore (profusely in the boggy parts of Chapel Corner Copse). Abundant in various places about Shanklin, as in the Chine, and in the ravine along the stream below the church, and under the garden of the Shanklin (late Williams's, now Hale's) Hotel. Plentiful in Great Copse, about half a mile out of Shanklin on the road to Ventnor, and frequent in Hungerberry Copse. About Cowes, as in woods at Norris Castle, and especially in Buckett's Copse, on her Majesty's estate at Osborne, in the utmost profusion; frequent also along the shore near West Cowes, towards Gurnet Bay. Abundant in copses between Gurnet and Thorness Bay. At Sheat Farm, near the Medina below Newport, in great profusion. Less frequent, it would seem, in mainland Hants. Most abundantly in a moist part of Durley Wood, near Bishop's Waltham, near the fine trout stream that flows in front of Calcot Farm. In a wet place below St. Cross, by Winton, to the westward of the mill, May, 1849. Gill Copse (Fareham), Mr. W. L. Notcutt. The largest *Carex* in Europe, if not in the world, often rising with us to six feet, and highly ornamental from its spreading tufts of fine, broad root-leaves, long, slender, elegantly drooping pistillate, and nodding, club-shaped staminate spikes. Always begins flowering in this county soon after the middle of April.

Carex Pseudo-Cyperus. In wet, swampy places, woods, thickets, pools, ditches, river-sides, &c.; not very common in the Isle of Wight. A single tuft in Quarr Copse, June, 1844. Between Brading and Sandown, in marsh ditches between Yarbridge and Yaverland, under Marshcombe Copse, in some plenty; also in ditches nearly at the back of Lower Morton Farm. Boggy spots by the little stream that descends to the sea between Niton and Blackgang, in some abundance, particularly in a swampy tract of ground partly enclosed by a stone fence near the shore, in great plenty, growing in large tufts, June, 1841. Picked in a pond between Wootton Bridge and King's Quay (one specimen only). In one or two places in the marsh at Easton, Freshwater Gate (perhaps destroyed by draining). Wood near Smallbrook Farm, about a mile from Ryde, Rev. G. E. Smith, 1838 !!! Picked at Christchurch, on the road to Sopley. Ditch-bank by the canal about a mile from Romsey, towards Timsbury, in some plenty, and on peat in a meadow not far from the same locality. In enormous quantity in ditches of the meadows adjacent to Broadland's Park (Lord Palmerston's), by Romsey, on the west side, quite filling them

in some places, June, 1850. In a lane between Cove and Hillmore Farm, near Farnborough, in some plenty. Abundant in a pool about a mile from Upper Exbury, on the road to Beaulieu. I have picked it in the heart of the New Forest, and in other parts of the county, where this most graceful species is very widely distributed.

Carex precox. Frequent on heaths, and in dry, turfy meadows, pastures, open woods, &c., throughout the county and island.

C. montana, *Schk.* (not of Linn. according to Sm.), *C. collina*, *Willd.* (see. Hook. and Arn. Br. Fl. 6th edit.), which has lately been discovered in Sussex by Mr. W. Mitten, should be looked for in Hampshire.

Carex pilulifera. In marshy, moory or boggy ground, on damp heaths, and in moist woods, &c.; not uncommon, and from its small size less often observed than overlooked. Plentiful in New Copse, between Ryde and Wootton Bridge. Common at Apse Castle, on the turf walks. On Lake Common, &c. I happen to have no memoranda of localities for this species on the mainland, where I have repeatedly met with it, and am certain of its being not at all unfrequent in that part of the county.

The very rare *C. tomentosa* of the adjoining county of Wilts, its only known British station being at Merston Measy, where it has been gathered in plenty of late years by Mr. Borrer and Mr. Flower, may be eventually found within the limits of this flora. With far greater probability may *C. clandestina* be expected with us, as it grows in quantities on the high chalk downs stretching eastward from Salisbury, towards the Hampshire border, as I am informed by Mr. J. Hussey, who showed it to me last May in the vicinity of that city, growing in patches, distinguished by their pale green colour from the surrounding short herbage of the downs. The neighbourhood of Breamore and Rockbourne, to the north of Fordingbridge, is the most likely to produce this rare and remarkable species.

Carex glauca (*C. recurva*, *Huds.*). In woods, meadows, pastures, along hedges, road-sides, on heaths and commons, in bogs and marshes; the most abundant and universal, as well as most variable in aspect, of all our sedges. In two specimens of *C. glauca*, I found on the summit of one of their pistillate spikes, in the first a diandrous floret, each of whose filaments was tipped with a *double* erect anther; on the other spike was a monandrous floret, with the filament cleft, and bearing a *single* erect anther on each fork. It is singular that this very common European *Carex*, which does not appear to be at all rare in Sweden, should yet have been overlooked and left undescribed

by Linneus. *C. filiformis*, frequent in the bogs of the north of England and Scotland, may nevertheless occur in Hants.

Carex hirta. In moist woods, meadows, pastures, by ditches, pools and other wet or boggy places; frequent both in the Isle of Wight and county at large. About Ryde, not uncommonly. Sandown marshes. In the *Cyperus* meadow at Ape's Down, abundantly. Common along the stream from Calbourne to Newbridge, and in moist meadows about Newchurch. Easton Marsh. Meadows between French Mill and Bobberston. Meadow at Yarbridge, abundantly. At Bonchurch, Steephill (on the edge of the little pond by the pheasantry), &c. Banks in Totland Bay, Mr. W. D. Snooke in Fl. Vect. By Alresford Great Pond, and noticed by me in very many parts of the county. Road between the tunnel and Cattisfield (Fareham), Mr. W. L. Notcutt. A variety with the pistillate spikes compound at base, I found, June 10, 1840, by the stream-side just above Calbourne Mill.

Carex ampullacea. In ditches, ponds, drains, and swampy or boggy meadows; very frequent in mainland Hants, and by no means rare in the Isle of Wight. In Sandown Level, on the skirts of Lake and Blackpan Commons, in several places. Abundant in several ditches by Newchurch, at the foot of the Parsonage Lynch, &c., and by a drain on Apse Heath, close to the withy-bed. In several parts of the marsh at Easton. Abundant in various places along the valley of the Medina, below Newport, in the boggy meadows between Cridmore and Appleford, about the Wilderness between that and Rookley, &c. I find it so frequent in mainland Hants that I have neglected making notes of its localities lately. Bog on Titchfield Common. Abundant in Winnol water-meadows, at Winton. In the shallow part of Miller's Pond, by Botany Bay, near Southampton. Plentiful about Christchurch, Romsey, Ringwood, and in the swamps of the New Forest. At Forton and elsewhere about Andover, &c. The nearly-related *C. vesicaria* there can be little doubt inhabits this county, although it has hitherto eluded my endeavours to find it with us. I understand from Mr. W. W. Reeves, that it abounds near Farnham, which town is very close on the Hampshire boundary line, and Mr. R. thinks he has seen it on the side of this county. The greener, not glaucous, leaves, larger and very inflated perigynes, and much more acutely angled culms, will distinguish it from the broader leaved states of *C. ampullacea*, which I believe are sometimes mistaken for *C. vesicaria*. Nothing can be more variable indeed than the former as respects the breadth of the leaves, which are sometimes

scarcely a line wide, in other examples three or four lines broad, whilst the degree of glaucescence is hardly less subject to variation.

Carex paludosa. In low, marshy, swampy meadows and pastures, in ditches, pools, by river sides, &c. Together with the next, an abundant species in the county, but not very common in the Isle of Wight. In a boggy spot on the western skirts of Lake Common, in plenty; also along marsh ditches by the road-side just before coming to Sandown village from Brading. Wet meadows a little above Alverston Mill, and along the side of the mill-stream, intermixed with the following, plentifully. Boggy meadows at Easton, Freshwater. Abundantly by the water courses just above Yafford Mill, and frequent in wet meadows about Brixton; abundant in the boggy meadows at Moor Town and all the way to Bottle Hole, in the wet willow thickets. At Steep Hill, in a moist meadow nearly opposite the stables and laundry, in plenty. More universal in mainland Hants, where it is of very common occurrence in most districts. Profusely in the great pond at Bishop's Waltham. Plentiful on Stoke Common, and about the pond at Old Alresford, &c. By Titchfield River, Mr. W. L. Notcutt.

Carex riparia. In exactly the same places with the last, and I think of about equal frequency on the mainland of Hants; less common perhaps than *C. paludosa* in the island. Abundant in the marsh ditches behind the Dover at Ryde, and in Centurion's Copse, near Brading.* Fringes the stream above Alverston Mill in great profusion and luxuriance. In most of the places given for *C. paludosa* on mainland Hants, as well as in innumerable others. Place House; Fontley (Fareham), Mr. W. L. Notcutt. Var. β . Spikes of either sex more attenuate (the pistillate especially), on extremely long, slender stalks, pendulous; staminate spikes for the most part solitary, terminal, drooping, bearing pistillate flowers in the middle. On a piece of very wet salt marsh under Chapel Corner Copse, at the mouth of the Wootton River, in plenty, May 22, 1846. This remarkable condition rather than variety of *C. riparia*, was sought by me unsuccessfully this summer; the plants on the station having assumed the normal ap-

* It has been suggested to me that Centurion is a corruption of St. Tewin, a Saxon or perhaps British saint, and that therefore the latter is the proper orthography. Tradition gives this copse as the site of a French town in very early times, as Newtown certainly was (thence called Francheville in old records): may not the place now occupied by the copse in question have been dedicated to St. Owen, the same personage as St. Tewin, and identical with the Welsh name of Owen?

pearance of the species, with but a slight tendency in one or two individuals to inordinate elongation of the peduncles.

Digitaria humifusa. In cultivated fields, in a sandy soil; very rare? Amongst corn (wheat and barley), potatoes, clover and turnips, on the sandy alluvial gravel on the north side of Christchurch, within a mile of the town, on the Wimborne road, in vast profusion, covering the soil in patches of large extent, as well as growing in a more scattered manner, Aug. 21, 1850. I traced the species, in quantity that was truly immense, from some allotment gardens in which it first caught my eyes, into all the neighbouring fields, in which, where the crop had been carried, I found the stubbles filled with it in flower. A farmer, seeing me gathering the grass, conducted me into his fields across the road, where it was equally prevalent; and further on I found part of a large potato-field in which the *Digitaria* formed a perfectly close, compact turf, like a grass lawn, to the absolute exclusion of every other plant, and concealment of the ground it grew upon. The species is well known to the farmers and their men, but has no distinctive name amongst them, being only held a kind of "poverty grass," that is, a grass indicative of an extremely poor soil. I have the best reason for believing that the *Digitaria* covers a far greater space of land than I had the opportunity of looking over, and that it will be found no very uncommon production of the alluvial sand or gravel which prevails throughout so large a tract of south-western Hants. It will likewise be detected probably in the sandy districts along our eastern or Surrey border, as between Farnborough and Petersfield, &c. The *Digitaria* was accompanied by *Antirrhinum Orontium*, a weed in every field and by the road-sides for miles round Christchurch, and in one place by *Arnoseris pusilla*, till then unknown to me as a plant of this county.

†*Echinocloa Crus-galli*. In waste and cultivated ground, also in low, moist situations, as sides of ditches, streams, &c.; extremely rare. "By a Rivolet side near Petersfield, Hampshire, Mr. Goodyer," Merrett, 'Pinax,' p. 56. I am not aware of any modern authority for this grass in the county, in which, however, it is quite as likely to grow as in any other of the southern and eastern ones. I have searched the sides of the stream that runs close by Petersfield, on the west of the town, having been led to suppose that it must have been the one intended by Goodyer, in consequence of the substitution of the definite for the indefinite article in copying Merrett's words into the Synopsis of Ray, from which last work the notice has been transcribed verbatim by the authors of the old 'Botanist's Guide,' and from them

by succeeding writers. But on turning to Merrett I perceive that he does not say *the*, but *a* rivulet, which leaves it very doubtful whether I searched in the right place after all, and gives ground for hope that this grass may yet be found in the neighbourhood.

Setaria viridis will, I feel confident, be detected hereafter in our sandy districts, with perhaps *S. verticillata* and *glauca* for its associates. The great rarity of the genera and species composing this tribe of Gramina (Paniceæ) is a remarkable feature in the English flora, seeing that most of them are amongst the commonest weeds of cultivated ground on the continent, under the parallels of the south and centre of England. Surrey seems to be the head-quarters of all the British panic-grasses, possessing more than perhaps any other county in its warm, dry, inland and easterly position, the climatic conditions in which this tribe of grass so eminently delights. Hence the species composing it fail totally in the west of England, in Wales, Scotland and Ireland, and I think are rarely found with us close to the sea. In an economical point of view, their absence from our fields is not to be regretted, as in most parts of the world, where the summers are very warm and dry, such harsh, worthless annuals as the various species of *Panicum*, *Setaria*, *Cynodon*, *Digitaria*, *Paspalum*, *Cenchrus*, &c., are miserable substitutes for the perennial, succulent meadow grasses of our own land, whose place they in a great measure usurp.

What may be the plant of Merrett (Pin. p. 56) intituled "*Gramen Paniceum procumbens, seu chamæ paniceum palustre*. In a lane, and watery places, and ditches near Petersfield"? Can it be *Leersia oryzoides*, a grass likely enough to grow there, and the culms of which are sometimes procumbent, or rather decumbent, when on damp ground and not immersed in the water, but the term "*chamæ*" seems to point at some species of smaller stature than that usually is.

Phalaris arundinacea. By the sides of rivers, ponds, pools and ditches; not unfrequent in the Isle of Wight, and extremely common and abundant in most parts of mainland Hants. In various parts of Sandown Level. By the Medina at Shide Bridge, Newport, abundantly. In the pond below Carisbrooke Castle, and abundant generally by mill streams and ponds at Newport and Carisbrooke. In the stream between Newbridge and Mill Green, near Shalfleet. Willow thicket between Messley Farm and Langbridge. By the stream-side at Yarbridge, and by the bridge at Alverstton and elsewhere. So common on the mainland, and universally distributed, that I have not been at the trouble of marking localities.

P. canariensis (Canary grass) is occasionally found, a few plants

here and there, on waste ground, manure heaps, &c., by fortuitous dispersion, but can hardly be called naturalized with us, and hence is not, any more than Buckwheat, a proper species for incorporation with the county flora.

Anthoxanthum odoratum. In meadows, pastures, woods, &c., especially in dry, heathy, sandy soils; plentiful over the entire county. Abundant at Apse Castle, &c. The culms have a hot taste when chewed, with a flavour of bitter almonds, and the fresh roots emit a powerful odour, less delicate perhaps than the fragrance of the herbage when drying, and which Swartz, in 'Svensk Botanik,' compares to the smell of the Tonquin bean; (Wickström, Stockh. Fl. p. 19, note).

Phleum asperum and *P. Boehmeri*, though very local, and not known to inhabit the counties contiguous to this, may nevertheless prove to be indigenous to Hants, and should be looked for in dry, open fields and pastures, on sand or chalk.

Phleum arenarium. On loose sand of the sea shore, but not common. On the sandy spit at Norton (by Yarmouth), Freshwater, in considerable plenty, June 21, 1846; already quite dried up by the great heat and long drought of the season, but since gathered there in perfection, in May, which is the proper flowering month of the species in this county. Along the South Beach, Hayling Island, in considerable abundance at intervals. Coast of Hants, Rev. G. E. Smith! Probably occurs on several other parts of the coast line, but flowering early, and soon withering, is from its colour, which comes very near that of the sand it grows upon, easily overlooked when in seed.

Phleum pratense. Abundant in most parts of the county and Isle of Wight, in meadows, pastures, borders of fields, &c., in high and dry, as well as in low, damp situations; common on the chalk, in the most arid exposures.

Alopecurus pratensis. In meadows, pastures and grassy places, by road-sides, &c., mostly in rich or somewhat moist soil; abundantly throughout the county.

Alopecurus geniculatus. Extremely common in and about shallow pools, ditches and plashy spots, likewise in moist meadows and pastures, in salt marshes, and even on dry ground. Var. β . Culms swollen, clavate or bulb-shaped at their base. With α . occasionally. On Ryde Dover and elsewhere. "Var. 2. Awns longer than the calyx; root bulbous; little fruit-stalks branched; sheaths wider than the thickness of the straw. Awns barely twice the length of the calyx. Anthers purple, changing to brown-yellow. Mr. Woodward thinks this different from the *A. bulbosus*, with an upright straw. On

a bog at the source of the Yar; Freshwater Gate, Isle of Wight." (With. Arr. 3rd edit. ii. p. 120). I know not what this can be, but suspect it is only the following species. *A. fulvus* will probably be some day discovered in this county, but as distinct from the present I have great misgivings.

Alopecurus bulbosus. In salt-marsh meadows, also in dry pastures and waste ground near the sea, in several parts of the Isle of Wight. On Ryde Dover in great plenty not many years ago, but I doubt if it exists there now, that piece of ground being nearly built over, and the small part still left unoccupied by houses levelled and trodden down into a bed of loose sand, and traversed by roads and embankments.* It may, however, be found in the marsh meadows at the rear of the Dover, between it and the gas-works. Salt marshes between Bembridge and Brading, near the sluice, &c., abundantly. Between Yarmouth and Thorley, by the road-side near the bridge. Marshy spot by the road-side between Brading and Sandown, Aug. 1848, Mr. Borrer. On the lawn of Lord Spencer's house, Ryde, Dr. T. Bell Salter. I have no station to give for this species on the mainland of the county, but cannot doubt its existence there, believing, as I do, that *A. bulbosus* is of very common occurrence in most of our salt or brackish pastures in the island, but not distinguishable with the certainty required for botanical indication from *A. geniculatus*, without examination of the glumes in every instance. In our standard floras and hand-books the culms are described as erect; they may be so in many instances, but here at least I have always found them as Lloyd remarks them in Brittany, decumbent and geniculate. The plant is, in fact, with us perfectly depressed, forming tufts of a circular outline, and looking as if trodden flat, the root emitting numerous leafy culms, spreading in all directions, with bulb-shaped bases, the lower joints geniculate, and the part of the culm above these porrected horizontally to the very termination of the spike; never erect, but sometimes a little ascending. There is, indeed, nothing in the aspect, colour or mode

* The existence of most of the interesting plants inhabiting the Dover at Ryde has become, within these four or five years, matter of history merely. I believe all or nearly the whole of the under-mentioned species are extinct or lingering their last on that once fertile spot to the botanist:—*Trifolium striatum*, *scabrum*, *glomeratum*, *suffocatum*, *ornithopodioides*, *subterraneum* (this last, and possibly a few specimens of the others, still survives on the little remaining turf), *Mercurialis annua*, *Onopordon Acanthium*, *Gastroidium lendigerum*, *Dianthus prolifer* (now greatly circumscribed in space), *Festuca uniglumis*? *Armoracia rusticana* (Cochl. Armor.), *Alopecurus bulbosus*, and *Datura Stramonium*.

of growth, so far as I can see, by which this species is distinguishable at sight from *A. geniculatus*, nor does *A. bulbosus* always grow in water, as Smith asserts, but often in dry or comparatively dry places. I cannot rid my mind of the impression that *A. bulbosus* and *fulvus* are but states, or perhaps permanent varieties, of *A. geniculatus*, much as I could wish to be convinced to the contrary by the many and able botanists who still keep them apart.

Alopecurus agrestis. In cultivated fields, amongst corn, clover and other crops; far too plentiful. Abundant in the Isle of Wight; extremely common about Ryde, Bembridge, Shanklin, Luccombe, Bonchurch, in corn-fields about Thorley, Wellow, Calbourne and most other places. Equally prevalent, I have reason to believe, on mainland Hants. Very common about Winton. Observed between Portsmouth and Petersfield, and in numerous other parts of the county. Fields by Gill Copse, &c. (Fareham), Mr. W. L. Notcutt. The corn-fields in many parts of the Isle of Wight are visibly tinged with the slender purple and green spikes of this most prolific and troublesome weed, the Black-grass of our farmers (Black-bent in some places), probably from its dark red colour. Flowering from April to November, the land is never free from it, but fortunately the species is confined chiefly to the southern parts of Britain, being rare and perhaps not indigenous to Scotland, and as yet quite unknown to Ireland. Here it is amongst the worst weeds we have, and although so near akin to one of our best pasture grasses (*A. pratensis*), I am not sure that cattle will touch it. Possibly the clover crops infested with it may not be injured by the admixture, when made into hay at least.

The rare and curious little *Knappia agrostidea* is not an unlikely plant to be detected eventually in our sandy (and especially maritime) pastures. It is not, however, essentially a sea-side grass, being found far inland on the continent, and is included in the floras of Paris, and various parts of Germany. Its extreme minuteness, and great precocity and brief duration, veil it no doubt from the eye of the observer in many places.

Gastridium lendigerum. By way-sides, in waste places, dry, rough pastures and cultivated fields, amongst corn, clover, &c., also (but more rarely) in woods and copses; extremely frequent in the southern part of the county, on or near the coast; not found, so far as I am aware, in the central and northern districts, or at any considerable distance inland, and varying in abundance in different years, being, moreover, very fugitive and capricious in its localities. Quite frequent, and in many seasons abundant even to profusion, over the greater part of the

Isle of Wight, seldom, if ever, I think, scarce at any time with us, but constantly becoming so on former, and appearing in new, stations. Its habitats are so numerous, and at the same time so little to be depended upon for permanence, that a particular mention of many of them would be superfluous. About Ryde in most years, common. On the Dover (at least formerly), about Quarr Abbey and Fishbourne, at St. Helen's, Sea View, and various other places. Woods on the west side of the Wootton River, July, 1845. Fields and woods along the new road from Wootton Bridge to King's Quay, in abundance, Aug. 1848. Very abundantly on the waste building-lots at East Cowes Park, June, 1846, and common generally around Cowes, in corn-fields, &c., also about Newport, at Garrett's, &c. A perfect weed in corn-fields sometimes, about Yarmouth, Thorley, and in Freshwater parish, both in the standing wheat and on the stubbles after harvest, which are often quite overrun with it till late into autumn. Not particular as to soil, but I think more prevalent on the chalk and clays of the tertiary deposit than on the greensand, and in low more than in up-land fields. The species here is as truly sylvestral as agrestal or vatical. If not so common along the coast of mainland Hants as in this island, it is at least no rarity there. In Hayling Island, not unfrequent. Near Boldre, Lymington, &c. Fields near Blackbrook; Maindell (Fareham), Mr. W. L. Notcutt. One of the most beautiful and elegant of European grasses, the pale green, spear-shaped panicle, shining with a silvery lustre, the dense tufts of erect or spreading culms, often eighteen or twenty inches in height, making a conspicuous appearance in our wheat-fields, where the plant may be found in flower from June to October. The figures of *G. lendigerum* in all our illustrated works on British botany are for the most part below mediocrity. That of E. B. is very indifferent; those of Knapp and Parnell poor and meagre in the extreme; the one in Baxter's 'British Flowering Plants' (done from Ryde specimens) is much superior, but still wanting in some points.

Polypogon monspeliensis. In brackish pastures, and muddy salt-marsh land, in and on the edges of salt-water or brackish ditches and swamps, also (but not with us) in dry, sandy pastures and waste places near the sea; rare. Not yet detected in the Isle of Wight. Known ever since the time of Lobel to inhabit this county, but first found by myself, growing in considerable abundance, July, 1848, partly in damp, and partly in very wet, salt-marsh ground near some long-since abandoned salt-works on the north-east side of the point of land projecting into Langston Harbour, about half a mile due south, nearly from Far-

lington Church, scattered over a considerable extent of salt marsh. I again fell in with it abundantly in a swampy spot close to a stagnant pool at the farther end of a large grass-field a little way out of Porchester, along with the following species, July 14, 1849.* Mr. L. H. Jacob, of Landport, Portsea Island, lately in the excise, but now retired, who possesses a considerable knowledge of British plants, and has botanized the mountains of Forfarshire with Mr. Gardiner, assures me that *P. monspeliensis* grows in several parts of Portsea Island, and particularly in a lane leading up from a place called the Salterns, or the rough Salterns (now abandoned) to a farm (Tangier Farm?) on the east side of the island, along with *P. littoralis*; and further, that *P. monspeliensis* grows in the north-west parts of Portsea Island, near Hillsea Barracks and elsewhere.† First discovered in Hants, according to Lobel,‡ by the Rev. Richard Garth, in wet, grassy places (*riguis herbidis*) near salt-works and old houses, called Drayton, two miles from Portsmouth. If the distance be here given correctly, the place called Drayton, on the road between Cosham and Havant, the only one I know of bearing the name, cannot be the station alluded to by Lobel, because it is six miles, or thrice the alleged distance, from Portsmouth that Lobel's habitat is said by him to be; besides which, I could find neither the *Polypogon* nor the remains of salt-works any nearer to the Drayton of our day than Farlington,

* The following directions will enable botanists to find our two *Polypogons* with facility. To arrive at the first station for *P. monspeliensis*, turn down the lane leading from the high road (Portsmouth and Chichester) to the Farlington water-works; cross the railway by the gate a little to the south of the works, and being now on the marshes, keep about due east, till you come opposite Farlington Church, you will find the plant in various places, but chiefly in and near a strip of very wet ground, covered with *Scirpus maritimus* and other salt-marsh species, amongst which the taller variety, *a.*, rises very conspicuously. To reach the second station, including the one for *P. littoralis*, proceed a few hundred yards out of Porchester, on the road to Havant; opposite a farm standing close by the road-side, a gate opens into the meadow in question, at the farther or south end of which is a line of salt pools, communicating with the tide in Portsmouth Harbour, and situated about half a mile, a little west of north, from Porchester Castle; in the westernmost of these pools both the *Polypogons* will be found growing in company. The meadow is further remarkable for a spring of the finest water, which rises through the brackish soil.

† Mr. H. Bull, of Portsmouth, in a letter to me, confirms the existence of both the *Polypogons* in Portsea Island, and since then I have received, from Mr. Jacob, specimens of each from the same island, with a notice of three stations for *P. monspeliensis*, in addition to those mentioned before, *viz.*, High Grove Field; lines at Hillsea, near the highroad; and Nine Acres, opposite Horsey Island.

‡ 'Adversaria altera pars.' p. 469.

which is barely near enough the former to make it possible that Lobel's and my own station are the same, setting aside the difficulty about the distance, which is not so easily got over. I suspect, therefore, that there is, or was, some other place called Drayton, much nearer to Portsmouth, and that Lobel's station is one of many Portsea-Island localities for *Polypogon monspeliensis* mentioned to me by Mr. Jacob. Var. *α. major*, Kunth. Panicle lobed; culm repent at the base; setæ very long. *P. polysetus*, Steud. Near Porchester, Dr. Macreight (in his *Man. of Brit. Bot.*); probably the same station as that given above. Var. *β. minor*. Panicle short, densely spiked; culm rarely repent at base; setæ short. Salt-works near Portsmouth, *Id.*; probably one of Mr. Jacob's stations before alluded to on Portsea Island. I find no other difference but in size between these two varieties, the larger growing in the wetter, the smaller in the drier places; the former rising to the height of four feet, with culms like reeds for thickness, and perfectly erect, except at base, bearing a panicle from four to five and a half inches in length; the latter forming tufts, with numerous culms, from a foot or less to about eighteen inches long, decumbent below, and spreading or partly erect; panicle much smaller, two to three inches long. I have never seen English specimens from other counties at all approaching the gigantic size of the Hampshire plants at Porchester and Farlington, but Mr. H. C. Watson has received examples as large from the Azores.* About Montpellier, from whence the species has its specific name, it is very common in arid, sandy places, and I have also collected it in the loose sand on Sullivan's Island, opposite Charleston, S. C., in June, 1847, where it has become naturalized, but in both places much smaller than with us. It is a singular fact, that the same plant which in the south of France is an inhabitant of the driest sands, should in England be found only in muddy salt marshes, a situation I do not recollect to have seen it in at Montpellier, nor have I heard of any instance in which this species has been noticed on sand in this country. Here *P. monspeliensis* is truly a noble grass, with its broad leaves and exquisitely soft, silky, compact, spear-shaped panicle, emulating many of its order native to the torrid zone. Few of the figures given by British authors do justice to this elegant species; that of E. B. is very bad; that of Knapp equally so, if not worse; Parnell's much better, but not first rate; Mr. Curtis's in *Brit. Entom.* xvi. t. 767, nearly all that can

* The great size of the Hampshire plant did not escape the observation of Lobel in the 'Adversaria' before quoted.

be wished, as far as the only portion of the plant represented is concerned.

Polypogon littoralis. In brackish or salt-water swamps, pools and ditches; very rare. Most profusely, with the last, in a swampy pool in the meadow near Porchester, before described, October, 1848. In Portsea Island, Mr. L. H. Jacob! A grass with very much the habit and appearance of *Agrostis alba*, but far larger and handsomer, yet liable, when out of flower, to be mistaken for an awned variety of that species, as indeed happened to myself, I having sent a specimen as such to Mr. H. C. Watson, with a query, in the autumn of 1848, to which he replied, "Is not your plant rather *P. littoralis*?" which, indeed, it was. In the Porchester station it grows associated with *P. monspeliensis* (its companion in most of its other known localities), *Agrostis alba* (the procumbent form), *Scirpus maritimus* and other salt-marsh plants, but exceeds them all in quantity, absolutely filling up the pool with its decumbent stems, so as to enable one to walk in amongst it, without sinking in the muddy water more than ankle deep. Here again, as with *P. monspeliensis*, the species appears greatly to exceed the usual size it attains in the few remaining English habitats. Many of the culms I measured were six feet in length, and the panicles eight and nine inches quite commonly. These last, especially in their contracted state before and after flowering, bear a certain resemblance to those of *Calamagrostis epigejos*, being, like them, lobed, and either purple or pale green, or a mixture of both, but much superior in elegance.

This very rare and beautiful grass was formerly supposed to be restricted to England, and even there is confined to a few spots on the south and east coasts, no other part of Britain being hitherto known to possess it. It is now ascertained to inhabit other parts of Europe, as in the island of Norderney, on the coast of Hanover, and according to Lloyd ('*Flore de la Loire inférieure*,' p. 297), on that of Brittany, but rarely. It is not likely, however, to be so circumscribed as it appears, yet must it be very local in its general distribution, both in this country and on the continent. I have not seen even a tolerable figure of this grass in any British or foreign work.

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(To be continued).

Observations on the Notice of the 'Tourist's Flora' (Phytol. iii. 1042).

By JOSEPH WOODS, Esq., F.L.S.

PERHAPS I ought to be contented with the portion of praise assigned to me by your reviewer "C.," in spite of the somewhat sneering tone in which it is given, and of the cant about *progress*; but I think that I have some reason to complain that he passes the bounds of fair, or at least of civil, criticism when he accuses the work of being false or faithless. A book may be censured in many points without implicating the author's moral character, but it is not possible that a scientific book should be justly stigmatized as false or faithless while the author is altogether honest and upright, and whether intended or not, ninety-nine out of a hundred readers will feel that the expression implies some dishonesty on the part of the writer. I was anxious to examine what the reviewer could find in the book deserving so bitter a censure, and was not a little surprised when I found that the whole charge against me was, that I had not given certain habitats of plants, when I knew them, or ought to have known them, since they had been published in the works of Mr. H. C. Watson. I hardly knew how to believe that any one should pass so harsh a judgment, avowedly on such slight grounds. I never pretended, or imagined, that plants were necessarily absent wherever their presence was not expressly declared. Perhaps I have been rather less solicitous about the British stations than about foreign ones, thinking that my readers when in their own country were more likely to apply to works expressly devoted to British botany, and that little more was wanting in that respect than to point out whether the plant before the student was one that might be met with at home. The habitat of *Lastrea Fœnisecii* was an error of the press,—“N. England” for “W. England.” In general, I conceive that in a work like the ‘*Tourist's Flora*’ the habitats can only be considered as indications of the points on which it would be desirable to seek local information, and perhaps to give the young botanist some additional confidence in the result of his investigation, when he finds the species at which he has arrived a native of the district where he finds it, or of its neighbourhood. To have given such habitats as would enable the botanist to find the precise locality, would have enlarged the work most inconveniently. I have sometimes thought that, if a sufficient portion of life and health were spared to me, I would publish a botanical guide, as a companion to the ‘*Tourist's Flora*,’ but I could not hope to compress it in much

less compass than the work itself. Gaudin's 'Botanical Topography of Switzerland' forms an octavo of 667 pages, and Mr. Watson's 'Botanist's Guide for England and Wales,' in a smaller form, contains 398. The larger extent of country embraced in the 'Tourist's Flora' would necessarily occupy more space.

JOSEPH WOODS.

Lewes, Sussex, October, 1850.

Contents of 'Hooker's Journal of Botany,' No. 22, October, 1850.

Notes on the Botany, Weather, &c., of the United States. By Dr. W. A. Bromfield.

Continuation of Mr. Spruce's Letters from South America.

Extract of a Letter from Dr. J. E. Stocks; being an account of a journey into Beloochistan.

Appendix to the 'Spicilegia Gorgonea,' published in the 'Flora of the Niger Expedition.' By P. B. Webb, Esq.

Botanical Information: *Amherstia nobilis*. Mr. Sullivant's new Mosses and Hepaticæ from Tierra del Fuego. The Ginkgo-tree (*Salisburia adiantifolia*) on Boston Common.

Contents of the 'Botanical Gazette,' No 22, October, 1850.

On *Carex ampullacea* (Good.) and *Carex vesicaria* (Linn.); with remarks on their modifications of form. By N. J. Andersson. [These species are said to change gradually, and correspondingly, with increase of elevation, and with other conditions analogous in influence, until the former appears to become *C. rotundata* (Wahl.), and the second to become *C. pulla* (Good.). It would seem further, from the author's remarks, that English botanists have been misled in substituting the name of *C. saxatilis* (Linn.) for that of *C. pulla*; the Linnean name more probably having been intended for *C. rigida* (Good.). The paper is translated from the 'Flora' of May 21, 1850.]

On *Triticum laxum* (Fries). By Charles C. Babington, M.A. [A description of a sea-side grass, probably not scarce on the shores of Britain, which is usually regarded as a small form of *Triticum junceum*. Said to be distinguishable from the latter species by flat (not involute) leaves, which are rendered scabrous on the upper surface by

numerous acute points. This latter character, with some others, is stated also to distinguish *T. laxum* from the littoral form of *T. repens*.]

Additions and Corrections to the Abstract of 'Fries's Hieracia.' From notes furnished by James Bladon, Esq. [Includes useful comparative lists of the species mentioned in Babington's 'Manual,' in Arnott's new edition of the 'British Flora,' and in the abstract of Fries's essay.]

Literature : Irmisch's Morphology of Tuberos and Bulbous Monocotyledonous Plants. Contents of various botanical journals.

Proceedings of Societies : British Association for the Advancement of Science. Botanical Society of Edinburgh.

Miscellanea : Record of Localities. Discovery of *Naias flexilis* in Ireland. New Locality for *Carex punctata* [query, *C. distans*]. Thuret on the Moving Spores and Spiral Fibres of the Cryptogamia. Gasparini's Herbarium offered for sale. E. Bourgeau's Spanish Collection for 1850.

Note on Lastrea uliginosa. By the Rev. W. T. BREE, M.A.

In consequence of the notice relating to *Lastrea uliginosa* on the cover of the August number of the 'Phytologist,' I have lately procured, through the kindness of a friend, a living plant of that fern, from Mr. Kennedy, in fine condition and fructification; and I feel no hesitation whatever in saying at once that it is *not* *Lastrea Filix-mas*, *rigida*, or *cristata*! The fern is familiar to me as what I have long been accustomed to distinguish by the name of *Aspidium spinulosum*, *i. e.*, *Lastrea spinosa* of Newman. The species is not uncommon in this neighbourhood in moist woods and bogs; but here with us it is usually of a much paler green. The darker colour of Mr. Kennedy's plant may possibly be owing to cultivation, soil, situation, &c. In Coleshill Bog, where the fern occurs in exposed situations, quite unsheltered by trees or bushes, the fronds are of a very light green, or rather of a yellow colour. I am decidedly of opinion that *Lastrea uliginosa*, which I admit would be an appropriate name for the plant, cannot be considered as a distinct species, and that it is only one of the *phases* of the somewhat variable *Lastrea spinosa*, or, as it is, I believe, more generally called, *spinulosa*.

W. T. BREE.

Allesley Rectory, October 14, 1850.

Botanical Society of London.

Friday, October 11. Arthur Henfrey, Esq., V.P., F.L.S., in the chair.

The following donations were announced :—British plants from the Rev. F. Douglas, Mr. J. B. French, Mr. R. Withers, Mr. J. H. Wilson, Mr. T. Dutton, the Rev. W. M. Hind, Dr. Caspary, and Mr. G. E. Dennes. ‘Du Mode d’Action de la Chaleur sur les Plantes et en particulier de l’Effet des Rayons Solaires,’ par M. Alph. De Candolle ; presented by the author. ‘Journal of the Royal Agricultural Society of England ;’ presented by that Society. ‘Journal of the Statistical Society of London ;’ presented by that Society. ‘Journal and Transactions of the Pharmaceutical Society ;’ presented by that Society. ‘Transactions of the Royal Horticultural Society of Berlin ;’ presented by that Society.

G. C. Churchill, Esq., of Harpenden, Herts, and Miss Evans, of Coventry, were elected corresponding members.

Mr. Daniel Oliver, Jun., exhibited specimens of *Naias flexilis*, *Rostk.*, discovered by him in a pond near Roundstone, Connemara, Ireland, in August last.

Mr. Daniel Stock communicated a paper ‘On the Botany of Bungay, Suffolk.’—*G. E. D.*

Note on a remarkable Monstrosity in a specimen of Verbascum nigrum. By H. L. DE LA CHAUMETTE, Esq.

THIS curious specimen was presented to me by my friend W. Coles, Esq. It was gathered in a lane near Reading, in Berkshire. The plant was found growing amongst many of its species. The whole of the bright yellow corollas forming the spike were transformed into green leaves, of the same shape as the corollas of the usual specimens. The pedicels bearing these green corollas were elongated to about an inch. From the centre of these corollas the pistil apparently arose, as a pedicel, bearing a similar green corolla on its summit. In various instances the stamens had the appearance of being converted into small, undeveloped buds. This gave the whole a very remarkable appearance. What could have been the cause of such a change in this one plant, all the others retaining their usual form of development ?

H. L. DE LA CHAUMETTE.

Church St., Stoke Newington.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 1084).

Milium effusum. In moist, shady woods and thickets. In various parts of the Isle of Wight, but not very common, and principally found in East Medina. About Ryde, in Quarr Copse, in some parts of which it is common; in Shore Copse, sparingly; wood between Quarr and Ninham; in Briddlesford, Bloodstone and Inward's Copses; New Copse, near Wootton Bridge. Sparingly in copses under Arreton and Mersley Downs. Wood at Apse Castle; in Cowpit Cliff, Greatwood and other hill-side copses, between Shanklin and Bonchurch, plentifully. Wood near Norris Castle, East Cowes. Tolt Wood, near Gatcombe (in W. Medina). Copse on the north side of Wroxall Down, above Wroxall Farm. I happen to have few stations for this conspicuous grass marked down in my notes for mainland Hants, but find it to be very general over that part of the county. Harewood Forest, near Andover, in plenty, and in woods about three miles from the same town, a little beyond Enham, on the Newbury road, 1850. Profusely in Crab Wood, by Sparsholt, three miles west of Winton, May 28, 1850. Hambleton Woods, about Alton, as in Akender Wood, Chawton Park, Rotherfield, Selborne and elsewhere, in plenty, June, 1850.

Agrostis setacea. On dry, turfy heaths, commons and high downs, sometimes also in woods and copses, where the soil is sandy or gravelly (never, I think, seen on the chalk); abundantly in the Isle of Wight, and the maritime districts of mainland Hants. Plentiful on the higher parts of Apse Castle. Profusely on St. George's Down and Stopler's Heath, by Newport, as also, before it was enclosed, on Royal Heath, Sandown. Heathy places about Kingston. In Youngwood's Copse; all over Bordwood Copse, Apse Heath and other places about Newchurch, abundantly, and indeed in most dry, heathy and elevated ground throughout the island. About Colwell Hill Farm and Freshwater, not unfrequent, Mr. W. D. Snooke in Fl. Vect. Not less plentiful on the mainland of Hants towards the coast; extremely rare, if found at all, in the centre and north of the county, but I have not yet determined its limits inland. The staple grass in most of the following localities:—Brown Down, behind Stoke's Bay; on Titchfield Common; Southampton Common; the prevailing grass on

most heaths about Southton. Profusely in the Poole basin, about Bournemouth, and on all the heaths and moors about Christchurch, Lymington, Beaulieu, and other parts of the New Forest and Christchurch hundreds, near the coast, in vast quantity. On dry, gravelly, heathy ground south of Anfield Church (part of Anfield Common?), June 26, 1850, the most northerly station in the county hitherto known to me.

This, the Rabbit or Deer's-foot grass of the Isle of Wight, is remarkable for the bristle-like slenderness of its leaves, constituting dense tufts of silvery gray, and forming a soft, highly elastic but slippery turf, exceedingly pleasant to walk or recline upon from its dryness, growing thickest and most cushion-like under the shelter of the heath and furze. The panicle remains closed as well before as after flowering, and indeed is but little expanded at any time, excepting in favourable states of the weather and at certain hours of the day, collapsing even then on being gathered. I do not believe *A. setacea* is relished by sheep, if they touch it at all, as in many parts where this grass forms the staple of the herbage, and sheep abound, its silvery panicles wave uncropped by these animals, and the root-leaves are not eaten down by them that I can perceive. It is a strange fact in the history of this grass, that although so profusely abundant in the south-western English counties, it was known, or at all events distinguished as a species, only in modern times, being probably confounded with other kinds of *Agrostis*, since no mention or description of it occurs in any author down to the time of Ray, who, one would think, must have detected its characters had he seen it growing. Even Hudson, so late as 1798, thought it a variety of *A. canina* in his 'Flora Anglica.' Curtis has the merit of first making it known to botanists, and his figure in 'Flora Londinensis,' like all from his pencil, is admirable. Although so abundant in all the south-western counties and in our own, the termination of this species to the north and east is remarkably abrupt. In Sussex it has hitherto been detected in a single locality only, and Bagshot Heath, in Surrey, is at once the most boreal and inland station that stands on good authority. The Yorkshire station is very apocryphal.

Agrostis canina. In moist woods, meadows, pastures, and on damp heaths; common.

Agrostis vulgaris. In rough, stony or sandy pastures, on heaths, by road-sides, and in other dry places; abundant everywhere. Often very diminutive on arid heaths and wastes, where I suppose it is the *A. pumila* of Lightfoot's 'Flora Scotica.'

Agrostis alba. In moist woods, meadows, ditches, damp corn-fields, grassy pools, and other wet places; common. Covers all the damp ledges of the cliffs to the north of Shanklin Chine, in great quantity and very large.

Apera Spica-venti (Agrost. Spic.). In dry, sandy, chiefly cultivated fields, and on banks adjacent; probably not rare on the eastern border of the county; not remarked in other parts of it, nor in the Isle of Wight. In vast profusion in the sandy fields at Cove, near Farnborough, where it is a troublesome weed amongst the crops of every description, wheat, barley, oats, beans and potatoes, also growing on the sandy borders of the fields, July 14, 1850. Common in corn-fields at Aldershot, two miles from Farnham, chiefly amongst wheat, August 2, 1850. I venture to predict that this most beautiful grass, which was sent to me in August, 1849, from the Farnborough station, as a Hampshire native, by Mr. H. C. Watson, will be found in many parts of the sandy tract between Petersfield and Farnborough, since it abounds in some of the adjacent parts of Surrey. Possibly, too, *A. interrupta*, lately discovered at Thetford, in Norfolk, may be found within our limits, a plant I am not acquainted with, and by some held to be a mere variety of *A. Spica-venti*. Few of our native grasses come up to the present in elegance, as seen waving its large, silky panicle in the breeze amidst the standing corn, rising to a height of two or three feet.

Obs.—At Aldershot, *Campanula Rapunculus* grows in very considerable plenty on hedge-banks and borders of fields, as intimated to me by Mr. W. Reeves last year, thus confirming it as a plant of the county. The Petersfield station mentioned in a former part of this catalogue, on the authority of Goodyer, I have great reason to believe was an error of the old botanist, and that *C. patula* was the species intended by him, as I find the latter in abundance in a sandy field on the north side of Petersfield Heath, but no traces of *C. Rapunculus* exist there at present.

Obs.—I am strongly impressed with the idea that *Stipa pennata* will eventually be confirmed to the British flora, by its discovery in the south-east of England. This remarkable grass is generally spread over southern and central Europe, being enumerated in the floras of Germany, Belgium and the north of France (Paris, Rouen, &c.). Dr. Salter tells me that, when a student at Guy's Hospital, he once saw numerous specimens of *Stipa pennata*, brought in by a person employed there, who had gathered them wild, as he affirmed, in the neighbourhood of Dorking; the person is since dead, and Dr. S. has

no clew to the locality. A plant of this kind, limited perhaps to a single circumscribed station, is as likely to elude observation as *Teucrium Botrys*, *Apera interrupta*, *Simethis bicolor*, and other recent but indubitably indigenous additions to the English flora.

Arundo Calamagrostis (Calam. lanceolata). In boggy, moory or marshy ground, wet hedges, woods, meadows and ditches; very rare? Not yet seen in the Isle of Wight. In wet or boggy hedges on the east side of Gomer Pond, Mr. Borrer. I gathered it in moderate plenty on boggy, moory meadows, amongst *Arundo Phragmites*, rushes, and coarse herbage of various plants, very near the Grange Farm, by Alverstoke, June and July, 1849. The station at Marchwood, near Southampton, sent by me to Mr. Watson, and inserted by him in the 'New Botanist's Guide' (Supplement), as on Mr. Borrer's authority, was a mistake of my own, for which I cannot now account, Mr. B. never having, as he tells me, found this species at Marchwood.

Arundo Epigejos (Calam. Epigejos). In open places, and borders of moist woods and thickets, in damp, shady, bushy pastures, on sand and clay; abundant on the northern side of the Isle of Wight, and especially in East Medina. Everywhere about Ryde, where there are few patches of copse or thicket wholly without this grass. In Quarr Copse, Shore Copse, Whitefield Wood, &c. Woods about Wootton Bridge and Havenstreet. At St. Helen's, in a wood by Hill Farm, and in rough, bushy ground by the descent to the mill from the green. In Long Phillis and Inward's Copses, near Ashey. Above Cowpit Cliff, near Shanklin. Near the Medina, above Cowes, in and about Parkhurst Forest and elsewhere near Newport. Almost everywhere along the shore, on wet clay, between East Cowes and King's Quay, as well as on the shores of the latter estuary. Less frequent in West Medina, but frequent about Yarmouth, as in Salterns Copse, by the road side nearly opposite Afton House, in Thorness Wood and shore adjacent, near Wellow, &c. Found in numberless other places in the island, but nowhere, I think, on the chalk, neither have I remarked it on the gale or in any part of the Undercliff, or elsewhere along the south coast. Woods along the Beaulieu River, between Beaulieu and Exbury, and near Upper Exbury brick-field, Aug. 28, 1850.

Psamma arenaria (*Ammophila arundinacea*). On loose sand of the sea shore; abundantly. Plentiful on the Spit at Norton and St. Helen's. On the beach at Sandown, but not plentiful. Used formerly to grow, but very sparingly, at the east end of Ryde Dover; probably now destroyed. Profusely along the south beach of Hayling

Island, particularly amongst the sand-hills at its western end. Sandy cliff and banks between Christchurch and Bournemouth, abundantly, and most profusely (covering hundreds of acres almost exclusively) on the sandy shores of Christchurch Harbour, Calshot Beach, &c. This grass is remarkable for having the culms solid or with a central perforation only, an unusual feature in the order of Gramina.

Phragmites communis (Arundo Phragmites). By rivers, ditches, ponds, in wet meadows, woods, thickets, osier-beds, damp hedges, and wet, marshy places in general; abundantly throughout the county. Plentiful in the Isle of Wight, even in salt-marsh ground, as along the Yar, between Freshwater and Yarmouth, &c. Var. β . Culms sterile, procumbent or trailing, twenty to forty feet or more in length. *Phragmites communis*, b. *repens*, Meyer. Chlor. Hanov. p. 650; W. A. B. in Phytol. i. 146. On wet banks of sand and slipped clay along the south and east shores of the Isle of Wight. Common along the shore at Puckaster Cove, trailing to a great length on the flat sands or hanging from the clay-banks above the beach, also in other places along the south coast. Near the Shanklin extremity of Sandown Bay, and rooting at the joints. In a ditch between Sandown Bay and Lower Morton Farm, I found it with culms of considerable length, floating, and emitting fibres from the joints, Aug. 1842. At Bembridge, Dr. T. Bell Salter. This singular form of the common reed of our ponds and marshes, appears to have been first remarked by Merrett ('Pinax,' p. 11) in this island, and his brief notice quoted by Dillenius, at the end of his edition of Ray's 'Synopsis,' in a list of uncertain, obscure or ill-authenticated species, on which it was desirable, if possible, to have light thrown. Meyer, in the 'Chloris Hanoverana,' is the only foreign author I find who has described this prostrate form, which he says occurs in the island of Norderney (the only German station for *Polypogon littoralis*), and Koch, Syn. 2nd edit., in sandy fields of the plain or valley of the Rhine (Rheinfläche). A more particular account of this variety will be found in a former volume of the 'Phytologist,' cited above.

Obs.—*Cynodon Dactylon* it is likely may be detected on the sandy sea-shores of this county, or perhaps in the sandy fields of the interior, as, notwithstanding it has hitherto only been remarked in England as a maritime and western species, on the continent it is by no means confined to the vicinity of the sea, but is found abundantly in various parts of France, Germany and Belgium considerably remote from the coast, and ranging as far north as Berlin and Hamburg. It already approaches our limits very closely, having been detected some

years since on the loose sandy beach of Studland Bay, Dorsetshire, by Dr. T. Bell Salter, and where I have myself gathered it in plenty. Its small size and insignificant aspect may occasion its being overlooked or slighted by all but the experienced botanist, whose interest is not exclusively engaged by magnitude or beauty of form and colour. This little, wiry, unpromising grass is dispersed over a large part of the warmer regions of the earth, and has obtained much celebrity for its nutritive properties, in both hemispheres. It is the Durrah-grass of India, the Crab-grass and Bermuda-grass of North America and the West Indies, and in all these countries is esteemed valuable pasture for cattle. The truth is, it is only deserving of regard in climes where our fine, succulent, meadow grasses will not succeed, and from its power of resisting the fiercest heat and drought of summer, in the sandy soil on which better herbage cannot grow.

Spartina stricta. In muddy salt-marsh ground along the coast, and at the mouths of rivers and creeks, always in the ooze of spots wholly or partially overflowed at high water; abundantly in most parts of the Isle of Wight, and of the opposite mainland, where mud-flats abound. Plentifully along the Wootton River, below Wootton Bridge. Shores of the Medina above Cowes, frequent. Salt marshes along the Yar, at Yarmouth, and near the shore at Norton. Newtown salt-marshes, in profusion. By the Southampton Water, below the town, and muddy shores of the Itchen River, near its junction with the Southton Water. I think I have remarked it in Hayling and Portsea Islands, but have lost or mislaid a quantity of notes made there a year or two back. Shore at Lower Exbury, in plenty. About Portsmouth, very abundant, Dr. Macreight, Man. of Brit. Bot. Between Southton and Millbrook, Winch in New Bot. Guide. Cams shore (Fareham), Mr. W. L. Notcutt! and doubtless in many other places along the coast. If it be not allowable to tax Nature with downright ugliness in any of her productions, it must be admitted that *Spartina stricta* has received fewer embellishing touches from her creative hand than most other members of a natural family in which artistic skill and finish are signally displayed. Our *Spartina* is, to call it by the mildest term, a very plain grass; its dwarfish stature, stiff; erect, rigid habit, totally devoid of all grace; its pale, sickly colour, a dirty, yellowish or brownish green, with sometimes a tinge of lurid purple, and made more dingy still by incrustations of slime and mud, from which it is seldom free,—when to all these defects is added the rank smell which distinguishes all the species of *Spartina*, we are forced to assign to the Twin-spiked Cord-grass the very lowest station amongst

the British species of this usually beautiful family of plants. Neither does it recommend itself to notice by any known uses like the following, unless, as in that, by its creeping and fibrous roots serving to consolidate the soft, fluctuating soil on which it grows, and affording a safe, if not dry, footing over the dreary waste of muddy salt-marsh. I am not aware that any animal will touch this grass, and the straw is much too short either for litter or thatching. Although found sparingly in Devonshire (ex herb. Smith), it appears to be everywhere scarce to the westward of the Isle of Wight, but extends southward into Africa, as far at least as Mogador, from whence I have seen specimens. The distinct articulation of the leaves, with their sheaths, by a slightly raised fillet or ring-like and cartilaginous joint, at which a separation can be easily effected at any time, will always distinguish this species from stunted or nascent specimens of the following, which sometimes resembles it not a little.

†*Spartina alterniflora*. In precisely similar situations with the foregoing species, but far rarer, and indeed only known in Britain on the subjoined station, where I feel pretty well assured it must have been introduced, although now perfectly naturalized. Profusely on mud-flats of the Itchen River, at Southampton, 1836. (For a full account of the characters, habit and uses of this species, see Hooker's 'Companion to the Botanical Magazine,' ii. p. 254.) Although unable to ascertain with any precision the date of its introduction to this country, I cannot persuade myself that this fine grass is aboriginal with us in England, a conclusion I should be the more happy to arrive at, since I was myself its discoverer at Southampton, and botanists, to whose opinion the greatest respect and deference is due, are arrayed against me in its favour. My objections to receive it as a strictly indigenous grass are, first, its limitation in Europe to a couple of stations on the western coast, both sea-ports having constant communication with America, over which continent it is very widely and abundantly distributed, but is quite unknown in our hemisphere, excepting in the two localities just mentioned.* Secondly, the weight of local testimony goes to prove that the Many-spiked Cord-grass was unknown at Southampton within the memory of persons now living, and although the evidence I have been able to collect be sufficiently confused and contradictory to show that very little is known about the origin of this grass with certainty, it is not so weak that we can

* The other European station for *S. alterniflora* is in salt marshes by the Adour, at Bayonne (Loisel. Fl. Gall. 2nd edit. i. p. 41).

safely set it aside in a case so open to suspicion as the one before us. Were additional stations to be discovered for *S. alterniflora* on our own or other European coasts, where no communication was kept up with America, I should feel justified in admitting it as a species common to both continents without hesitation, regarding the suspicious nature of the Southampton habitat in the light of a mere coincidence; as it is, reason, I think, demands the withholding the full rights of aboriginality from a plant that betrays its exotic descent in so palpable a way as this. I do not understand how those who are so forward to doubt the indigenous claims of many a strictly European plant in Britain, can consistently pass an acknowledged and almost exclusively American one into the list of indubitable natives, as is negatively done in our standard botanical text-books by the omission of the usual symbols of distrust. As to the way by which this grass may have been conveyed hither from America, a few of the creeping roots accidentally taken on board a trading vessel, with ballast or freight, would retain their vitality long enough to vegetate when thrown out upon the muddy shores of a tide-river like the Itchen, and would afterwards propagate the species by the runners they send out, for neither this nor our native species, *S. stricta*, perfect seed, at least habitually and plentifully.

S. alterniflora is a valuable grass, and notwithstanding the fetid odour it has in common with the rest of the genus, affords grateful and nutritive food for cattle. I had already pointed out its practical application to purposes of rural economy by the people of Southampton in my memoir above alluded to, when I was both surprised and gratified to find during my late tour in the United States that it was used in that country just in the same way as in our own. At Southampton it is regularly cut down by the poorer classes, and employed by them in lieu of straw or reeds for thatching out-houses, cattle-sheds, &c., and more extensively for litter, and subsequently as manure;* horses and pigs, I am told, eat it greedily; and for all these purposes it is much sought after, so that hardly an accessible patch is suffered to remain uncut by the end of September.† As fodder, it

* A labouring man with whom I conversed, in 1836, on the uses of this *Spartina*, assured me he remembered it in its present station upwards of twenty years; had formerly employed it in thatching a part of his own premises, and found it outlast two courses of straw. The people here know it only by the common name of "sedge."

† Elliott says of *S. glabra* (*S. alterniflora*):—"This plant is greedily eaten by horses and cattle. It is remarkable for a strong rancid and peculiar smell, affecting the breath, the milk, butter, and even the flesh of the cattle that feed upon it. It

ought, I conceive, to be put much earlier, when in flower in July and August, as it is then more tender and succulent, and the rancid smell, which to myself comes near that of phosphuretted hydrogen, is not repulsive to stock, to which it probably recommends itself by the salt it contains. For this reason, and from the power of the creeping roots to bind and consolidate the soft soil deposited by the tide, it might be advantageously planted on the mud-flats of our southern and eastern coasts. In America, *S. alterniflora* abounds from north to south. I observed it abundantly at Boston, New York, and at Charleston, S. C., on the mud-flats of the Ashley and Cooper Rivers, and in the salt swamps and creeks that intersect the suburban districts of that pretty but insalubrious city. I am not aware of any use this grass is put to in New England or at New York, but in Charleston, where, as at Southampton, it covers acres of salt marsh around the town, looking at a distance, when ripe, somewhat like fields of wheat, it is of great importance, and in the months of May and June, when fresh and succulent, and before flowering,* bundles of *Spartina* (there called "salt-marsh," or simply "marsh," sometimes "grass"), made up like wheat-sheaves and set on end, may be seen for sale at the corners of the streets and in the markets, chiefly for the use of horses. An intelligent negro of Charleston assured me that from May to September stock were very fond of it, but refused it earlier and later, when it becomes hard, dry and unpalatable, and I think loses much of its odour. This man further told me that a coarse hay was made from it, and the straw used for littering cattle, thus confirming Elliott's account in every particular. That its properties and appliances should so soon have been discovered and carried out in England, where the field for experiment was so contracted, is a curious circumstance in the history of this interesting grass, and speaks much for its practical value to the agriculturist. Professor Gray, in his 'Manual of the Botany of the Northern United States,' fears to adopt the prior name, *alterniflora*, of Loiseleur Deslongchamps for Muhlenberg's *glabra*, not being certain that the two plants are the same, since Trinius says the leaves are "marginè hispidula." The Southampton plant at all events has the leaves perfectly smooth on the edges, and so, as far as I can see, have those of a single *Unio Itine-*

affords, however, good pasturage for out-door stock, and is becoming valuable and valued as a manure." ('Sketch of the Botany of S. Carolina and Georgia,' i. p. 96).

* At Charleston it flowers scarcely a month earlier than at Southampton, where it begins to blossom towards the end of July, continuing on into September.

raria specimen I possess from Bayonne, kindly given to me by Sir Wm. Hooker, but which were suffered to become involute in drying, which they never are naturally, and are, besides, firmly glued to the paper. May not the leaves be occasionally a little rough-edged, both in European and American specimens?

Andropogon Ischæum I should never be surprised to hear had been detected in the south-east of England.

Leersia oryzoides. In and about the grassy or reedy margins of rivers, brooks, ditches and ponds, in swampy meadows, wet hollows, and other marshy places; very rare? In many parts of the Boldre River, West Hants, in great plenty, 1849 and 1850. Since the account of my finding this extremely curious and interesting grass with us was published in this journal for November, 1849 (Phytol. iii. 681), my anticipations of detecting it in increased frequency and abundance have been amply realized. I am now enabled to announce it as abundant in the Boldre River, for nearly three miles along the stream above and below Brockenhurst Bridge. In tracing the plant above bridge I commenced, August 24, with the southernmost tributary, or branch of the river, which diverges to the left from the main stream, in a westerly direction, at the west corner of New Park Inclosure, and is known as the Rhinefield Water, along which I found the *Leersia* in plenty, at distant and irregular intervals, for about a mile and a half, on both banks, becoming more frequent as I ascended the stream, and growing chiefly where the banks expanded into small, marshy flats, as near the Aldridge Inclosure, above Rhinefield Lodge, but ceasing entirely higher up, where, on approaching Markway Bridge, the country assumes more completely the moorland character. Here the *Leersia* grew very large and luxuriant, amongst *Myrica Gale* and other swamp shrubs, always in or close to the edge of the stream, and remarkably erect, the panicles fully formed, but no portion of them protruded from the sheaths. Descending the river, we first find the *Leersia* again at Brockenhurst Bridge, as described in a previous communication; here are two moderately sized tufts of it only, growing out of abundance of *Isnardia palustris*,* just under the railing at the Brocken-

* I was fortunate to discover a third Hampshire station for the *Isnardia* on the 25th of August last, namely, in a damp spot (apparently a water-way in the winter months) in the heart of the New Forest, between two of the branches or tributaries of the Boldre River, a little to the north-west of New Park Inclosure, and about two miles in the same direction from Brockenhurst Bridge, an exactly similar locality to that of the *Isnardia* on Petersfield Heath, and where it occurs, as there, in plenty, with *Helosciadium inundatum* and *Peplis Portula* for its associates. On this station

hurst side of the bridge, and on the left hand crossing over it to go towards Lyndhurst. Pursuing the downward course of the stream, we find the plant again under the wooden railway viaduct between the bridge and Brockenhurst Mill, and in this part of the river I may mention grows plenty of *Ribes nigrum*, in an unquestionably native state. A little below the mill the *Leersia* shows itself for the third time, and may be found in plenty in an expansion of the river between the wooden bridge across the ford, a couple of hundred yards at most from the mill, and where the stream enters Brockenhurst Park under some heavy palings placed across it, not a weir, as stated in the former account. Within these palings, and consequently in the park, the *Leersia* speedily becomes more abundant than ever, forming patches by itself of several feet in length, and so continues at intervals for perhaps half the extent of the park, when it ceases rather abruptly, as I was unable to trace a single plant lower down, towards Boldre Bridge, where the water becomes saltish, not even at Royden Farm or Hayward Mill, where the current is quite fresh. I have tracked the main stream of the Boldre River, above Brockenhurst Bridge, very nearly up to Lyndhurst, but find none of the *Leersia* along any part of its course, which, however, is chiefly between steep water-worn banks, and therefore not fitted for the production of this plant, which delights in the swampy, grass-grown margins of rivers, where such species as *Phalaris arundinacea* and *Phragmites communis* flourish. I have since searched the upper part of the Beaulieu River, and several of the smaller forest streams, but without meeting with the *Leersia*, which, however, I am confident must exist in more localities than those in which it has yet been detected with us. In particular I should expect it in the Avon and Stour, and their tributaries, as also in the streams and ditches that intersect the great marshy valley between Christchurch and Fordingbridge, about Ringwood, &c. It should likewise be looked for in our mill pools and the large ponds, of which we have so many on the forest lands in east and west Hants.

the plant flowers and fruits freely, trailing on the damp but not overflowed soil, although much smaller and less luxuriant than at Brockenhurst Bridge, where it grows submerged, and fructifies much more sparingly. A search for this and the *Leersia* will lead the botanist into some of the most lovely and secluded forest scenery in Europe, into shades as solitary and primæval as the back woods of America, where he may wander for miles and for hours together without meeting a human creature, through groves and glades of brave old oaks and beeches, with no underwood to impede his steps.

In our Hampshire waters the *Leersia* usually grows quite erect, whether the culms be few or, as they more frequently are, numerous from the same root, but occasionally some of the culms become reclining, decumbent or even procumbent, or at least very strongly geniculate, especially when the plant is growing from a projecting portion of the bank. I have never seen the *Leersia* in England as an inhabitant of simply marshy places, as in other countries, but always in or closely contiguous to water, usually with the bases of the culms immersed, but creeping now and then for a foot or two upon the wet soil of the banks, amongst other aquatic grasses. The power the leaves and sheaths possess of cutting the hands of those who gather the plant would seem to be overrated; that it is capable of doing so I can assert from personal experience, but the occasional slight incisions caused by its asperity scarcely go deeper than the cuticle, at least with myself; in some of its rougher states, however, it might prove more formidable. The *Leersia* is one of the very few British grasses that are branched, and the only one that bears two, three or even four panicles on the same culm from the axils of the lower leaves, in both which characters it recedes from most Gramina of the temperate zone, and assimilates to those of tropical regions. The resemblance in structure, habit, colour and general aspect of this singular grass to the awnless variety of the cultivated rice is indeed very remarkable. Another feature worthy of notice in our *Leersia* is the extreme tendency in the leaves to become involute on being gathered, which happens so rapidly that a few minutes suffice for them to roll up completely into a cylinder; the same effect follows almost instantaneously if the leaves be drawn through the fingers or handled in any way. This result can be prevented by always leaving the root attached to specimens intended for preservation, for if put with a mass of roots thoroughly saturated but not dripping with water, into a closed tin collecting-box, the leaves will retain their flatness perfectly for two or three days, and when laid out, the roots should still be left attached, as, if severed, the leaves will instantly begin to curl up when placed in contact with the drying paper, and even when the above precaution is observed, the specimens must be handled as little as possible, and subjected to pressure without delay. The *Leersia* is indeed a most intractable plant for the herbarium, where specimens are desired that shall really exhibit the character of the grass, not only from the above-mentioned tendency in the leaves to curl up, but from the size, length and branching of the larger examples, and particularly from bearing two or more panicles on one stem, which prevents its being folded or

doubled on the paper with the same facility as other British grasses. The best time for collecting the *Leersia* is towards the middle of September, which is, I think, the average season of flowering with us, but as only a very small portion of the panicle is usually protruded in this country from the top of the sheaths, it is difficult to ascertain when the flowering actually begins; I suspect it often commences in August, and the seed is ripe in October. The roots are easily pulled up out of the soft mud by grasping the culms at bottom, and come up in huge, matted clumps, which are readily cleansed by repeated plunging in the stream; the superfluous water should then be wrung out, and the mass divided into portions as large as can be conveniently packed in the collecting-box. In this way only can specimens be preserved in a perfect condition for drying, on the return home of the collector, or for transmission to distant correspondents. I do not think it would be possible to collect the *Leersia* between the leaves of a field portfolio, unless strapped together much tighter than could be conveniently managed, to obviate involution. There is this advantage, too, in keeping the specimens with their roots thoroughly wetted in a close tin vasculum for about twenty-four hours previous to laying them out, that the panicles, I find, by the warmth and moisture of the included air, partially make their egress from the tops of their sheaths much more decidedly than when growing in their native waters, thus approaching closer to the normal state of the inflorescence, as developed in the south of Europe.

An opinion seems to have prevailed amongst some botanists of Germany that *Leersia oryzoides* was introduced to the ponds and rivers of that country from Italy (Phytol. iii. 682, note). The cause of this idea I apprehend to be, that the grass was overlooked there in the same way and for the same reason that it so long escaped detection in England,—its clandestine mode of flowering in central Europe. If not rare, it is at least a local species on the continent, and possesses little or nothing in its general aspect to attract attention from the passer-by. Mr. Borrer has remarked to me its great resemblance to the barren shoots of *Phalaris arundinacea*, its common associate, and to which genus it was even referred by Linneus, but may always be distinguished from that common grass by the paler, yellowish or brownish green of the leaves, not to mention their extreme roughness. It is probable, however, that this resemblance may have contributed in no small degree to veil it from observation, both in our own country and on the continent. Schreber (Beschreib. der Gräsern, 2ter th. s. 7) says our *Leersia* was first discovered in Italy, by Padua, Verona, &c.,

subsequently in Switzerland and different districts of south Germany, and finally in various other and more northerly parts of that country, as Saxony, Hesse, &c. It is now ascertained to inhabit most parts of continental Europe south of the Baltic from Belgium, eastward to Poland and Russia, and northward as far as Holstein (Fl. Dan. x. fasc. 30, p. 1, t. 1744). The occurrence in Britain of plants of so austral a type as *Leersia* and *Isnardia*, should be a hint to some of us not to be so ready to doubt the indigenous origin of every new and many an old discovery, for I suppose few will impugn the aboriginality of these two species, since neither are ever cultivated for their beauty or other qualities. So long, however, as such plants as *Cyperus fuscus* and *Viola odorata* are objects of expressed suspicion, and the asterisk is still appended to even such boreal productions as *Aquilegia vulgaris* and *Humulus Lupulus*, there is no security for any British vegetable being permitted to flourish with its claims to nativity unimpeached. The figure of *Leersia oryzoides* in 'Flora Danica' (ut supra), and that of Host, Gram. Aust. i. t. 35, are admirable full-length portraits of that grass as it usually exhibits itself in this country. Schreber's figure (*Beschreibung der Gräsen*) is also very accurate, and that author notices a peculiarity in the structure of our *Leersia* which seems to have escaped the observation of all previous and subsequent describers of the species, and which I find very correctly stated in his excellent and detailed account. At the origin of each branch of the culm, or in the axil of the bifurcation between the branch and main stem, will be found a long, narrow, pellucid and membranous appendage, sometimes of a brownish colour, applied by its thin margins to the branch, which margins form a fold or reduplication, that is garnished with long, white, silky, rather distant or scattered hairs, directed downwards according to Schreber (*herunterwärts stehenden*), but spreading in our Hampshire specimens.

Obs.—*Sesleria cærulea*, which occurs on the chalky hills and banks of Normandy, may well be supposed able to maintain itself on the same formation in the south of England; this probability of its occurrence should therefore be kept in mind by botanists residing in the Channel districts.

Aira cæspitosa. In moist, shady places, woods, thickets, groves, &c.; plentiful in the Isle of Wight and throughout the county. In Quarr Copse, Apley Wood, and elsewhere about Ryde. Abundant in woods at Yarmouth, &c., and in most parts of mainland Hants.

Aira flexuosa. In dry, heathy, hilly pastures; decidedly very local in the Isle of Wight, but probably not rare in the county. On

St. George's Down, by Newport. At Apse Castle, near Shanklin, abundant, but confined chiefly, if not wholly, to one part of it, namely, the heathy portion about America. A single specimen found in a corn-field near Mottiston, July, 1838. On Royal Heath, Sandown, Mr. Albert Hambrough! (probably now destroyed by inclosing). I have some how or other neglected making notes of this and the two following grasses on the mainland, although certain of having seen them all three at various times. The present species I have gathered near Farnborough Station, in July last.

Aira caryophyllea. In dry, barren, sandy or gravelly and hilly pastures, on heaths, &c.; not unfrequent. In rough, elevated fields near Bembridge, plentifully. Field between Sandown and Lee Farm, in great profusion. On Royal Heath and Lake Common. Frequent, if I remember right, on Bleak Down, on the sandy fences by the road side, and in various other places. The Salterns (Fareham), Mr. W. L. Notcutt.

Aira præcox. In exactly similar places with the last, also on banks, waste ground and wall tops occasionally, but I think less frequent with us than that. Plentiful some years ago on a waste part of Ryde Dover, but doubtless now destroyed. On the higher and heathy part of Apse Castle, near the top of the hill, abundantly. On Royal Heath, but whether to be found at present on that almost entirely inclosed spot I am ignorant. These are the only Isle-of-Wight stations I find on record by myself; for mainland Hants I have only the following habitat as yet to communicate, although there can be little doubt the early Hairgrass is no uncommon species in the county. Titchfield Common, Mr. W. L. Notcutt. Well distinguished, as they are, by excellent and stable characters, and by the different flowering time, there is a close resemblance between this and *A. caryophyllea*, which last, in some of its more luxuriant states, incurs greater liability to be mistaken for *A. flexuosa* than for *A. præcox*, being in fact a quasi-intermediate, though perfectly distinct, species from both its larger and smaller congeners.

Corynephorou scanescens (*Aira canescens*, Sm. &c.) may be looked for with strong probability of success on the sandy parts of the Hampshire coast. It is stated to occur as near to us as Poole, in Dorsetshire.

Trisetum flavescens. In dry fields, meadows, pastures, heathy places, by road-sides, on banks, &c.; very common in most parts of the Isle of Wight, and I think of the rest of the county; particularly abundant on the chalk, but not unfrequent in sandy places.

Avena fatua. In corn-fields and other cultivated land, in waste ground, fallows, &c.; abundant in most parts of the Isle of Wight, to an injurious degree in cereal and other crops. Much too common about Ryde, Yarmouth, &c. amongst corn, clover, turnips, &c. Generally distributed, I believe, over the county. The more valuable cultivated Oat (*A. sativa*) differs from the present species in its smaller and far less spreading panicle, which continues unilateral to the last; in its smoother, less strongly ribbed florets, nearly devoid of all hairiness beneath, one or more of which are abortive, and wanting the awn, which is shorter, and not geniculate, as in that. The florets of the cultivated Oat are placed upon a short, vertical, compressed pedicel, immediately under their base, in a transverse position, whilst those of *A. fatua* stand laterally or obliquely upon their very short point of insertion, and are all furnished with awns.

‡ *Avena strigosa*. In corn-fields and cultivated ground, in potato-plots, &c., here and there occasionally, but not common, at least in the Isle of Wight, and doubtless introduced with agricultural seeds. In a field at Steephill. A specimen or two amongst potatoes in a garden near St. John's toll-gate, Ryde, Rev. G. E. Smith, 1838 !!! I believe I have gathered it elsewhere in the island, but its presence here is quite fortuitous, and hardly entitles it to a place in our flora, even amongst the naturalized species. I am not aware that it is ever cultivated with us as it is in various parts of Europe, and very commonly in the Isle of Skye, as I learn from Mr. Borrer. Spikelets two- (sometimes four-) flowered; both florets perfect, the inner one on a geniculate, bearded pedicel, but neither having any basal tuft, as in *A. fatua*. Scar nearly circular, neither transverse nor oblique, the pedicel of each floret being rounded, not compressed, as in *A. sativa*, which the present species much resembles; inserted at the very centre of the base of the pales.

Avena pratensis. On dry pastures and heaths; very common in the chalky parts of the island, and, with the next, on most of the chalk downs in the county. Plentiful on St. Boniface Down, and other parts of the Undercliff; about Carisbrooke, &c.

Avena pubescens. In dry woods, pastures, on chalk-banks, downs, &c., with the last, and I think equally common. Abundant on St. Boniface Down, and elsewhere along the Undercliff. Common about Luccombe, Carisbrooke, Freshwater, &c., Mr. Dawson Turner in Snooke's Fl. Vect. !!!

Arrhenatherum avenaceum (*Avena elatior*, Sm. &c.) In meadows, pastures, thickets, on hedge banks and by road-sides; very common

in the Isle of Wight and throughout the county. Var. β . *bulbosum* ; frequent. This variety is called Knotgrass in the Isle of Wight.

Holcus lanatus. In meadows, pastures, woods, and about hedges ; almost everywhere.

Holcus mollis. In woods, copses, meadows and pastures ; usually in more shady places than the last, and much less frequent with us than that. In Quarr Copse, and wood between Quarr Abbey and Ninham Farm. In Whitefield Wood, between Ryde and Brading, and in Stroud Wood, by Aldermoor. The prevailing grass on some parts of Apse Heath. Plentiful in Northland's Copse, near Yaverland. Probably not unfrequent throughout the county, but my knowledge of the distribution of the Gramina and Cyperaceæ on mainland Hants, even as regards the commoner species, is very limited at present. Cams (near Fareham), Mr. W. L. Notcutt.

Triodia decumbens. On dry, hilly pastures and heaths, also in boggy, moory ground ; not, I believe, unfrequent in the island and county generally, but from its depressed mode of growth apt to escape remark. In Firestone Copse. On the down above the Culver Cliffs. Plentiful amongst the furze on Colwell Heath, Freshwater, especially at its north-west corner, close to the bay. Bog at Cockleton, near Cowes. Heathy ground between Yarmouth and Newtown. Grounds at the Priory. Anfield Wood, near Winton. Titchfield Common, frequent, and doubtless in many other parts of the county. This plant is remarkable for having the upper surface of the leaves pale glaucous, the under of a full, deep green, the reverse of which is the case with leaves in general, and the usually membranaceous ligule reduced to a mere fringe of extremely short hairs.

Kæhleria cristata (*Aira cristata*, Sm. &c.). On dry, elevated, sandy or chalky pastures and downs ; chiefly, I believe, near the coast. In many parts of the Isle of Wight. Abundant on Brading, Bembridge and Yaverland Downs, and on the edges of the sandstone cliffs above Sandown Bay, plentifully ; abundant also along the edge of the cliff between Niton and Old Park. In the Lenten Pit, by Carisbrooke. On Freshwater Down. Maindell Chalk-pit (Fareham), Mr. W. L. Notcutt.

Melica uniflora. In shady woods, copses, groves, and under hedges ; very common in most parts of the Isle of Wight, and the rest of the county. Common about Ryde, in Quarr Copse, St. John's Wood, &c. Between Shanklin and Bonchurch. Abundant in Chawton Park, near Alton ; Enham, near Andover, &c. About Fareham, Mr. W. L. Notcutt.

M. nutans, frequent in some of the northern counties of England, it is possible may one day be found in the south, for which it is indicated doubtfully in the 'New Botanist's Guide.'

M. ciliata, a fine species, with a very different aspect and habit from both our own, and which I have gathered plentifully in the south of France, occurs over the greater part of continental Europe, and is not very unlikely perhaps to prove an addition to the British flora hereafter. It grows in very dry, rocky places.

Molinia cærulea. On heaths, barren, sandy or gravelly pastures, and moory, boggy ground. Frequent in the Isle of Wight. On Stopler's Heath, by Newport, and in Parkhurst Forest, abundant; in the latter it is the prevailing grass. On Apse Heath, Lake Common, heathy places about Kingston and elsewhere, in plenty. Profusely on the boggy moorlands of south-western Hants, in the great fir-plantations about Ringwood, Christchurch, Bournemouth, &c., and in most other quarters of the county, particularly in the old forest districts of Wolmer, Holt, Bere, &c. Var. β . Leaves longer and less rigid; panicle green. *M.* (Ernodium) *cæruleum*, var. *atrovirens*, Dumort.? In shady places, under trees; Parkhurst Forest, &c. A mere state of the plant, induced by shade preventing it from acquiring the violet or deep purple which distinguishes it in more open situations. Like the following (*Catabrosa aquatica*), this grass has been the sport of system, having been a *Melica*, *Aira*, *Festuca*, *Poa* and *Arundo*, from its affinity to all, uniting itself completely with none, and hence properly constituting a genus apart.

Catabrosa aquatica. In shallow pools, ditches, drains, and other wet, swampy places. Rather uncommon in the Isle of Wight. In several marsh-meadow ditches in Sandown Level, above Alverstone Mill, one of which I found nearly filled with it. Abundant in a little pool by the road-side at the entrance of Sandown village from Brading. Ditch in Appuldurcombe Park. Under the cliff at Foreland, Dr. T. Bell Salter. Pond near the village of Pan, Mr. W. D. Snooke in Fl. Vect. Not at all rare, I think, on mainland Hants. Profusely in the neighbourhood of Romsey, filling the meadow-ditches. Common about Christchurch, Ringwood, &c. Chilbolton Common, Andover, and various other places. Side of Stubbington Road (Fareham), Mr. W. L. Notcutt.

Poa bulbosa. In dry, sandy ground and pastures by the sea; occasionally inland; very rare? On the sandy spit below St. Helen's, Isle of Wight, May, 1850, Dr. T. Bell Salter!!! This curious and local little grass is far from plentiful in the above station, but may be

gathered at intervals nearly the whole length of the spit or tongue of low, sandy ground that almost closes the entrance to Brading Harbour, converting it at high water into a salt-lake. The *Poa* prefers the turf, where the herbage is thin, to the bare, loose and shifting soil of the sand-hills, growing on the former in a scattered manner, a few plants here and there, at considerable distances apart. It will probably be detected on other parts of the Hampshire coast, and possibly in the sandy tracts of the interior, but I searched for it unsuccessfully along the south shore of Portsea and the opposite part of Hayling Island in May last, with great expectation of finding it after its discovery at St. Helen's, and from having only a week before gathered it in plenty at Little Hampton, Sussex, with Mr. Borrer, who first noticed it there. My Sussex specimens are much larger and finer than those from the Isle of Wight, and far more abundant, which may account in some degree for my having overlooked the species in the latter station, which I was in the habit of visiting very often, at all times of the year; but *Poa bulbosa* is at best an inconspicuous grass, with no strongly marked character to arrest the attention of one unacquainted with its appearance when growing, as was the case with myself. Mr. Borrer remarks that this *Poa* resembles *Köhleria* (*Aira*) *cristata* in its panicle, only much shorter and smaller; to myself, when in full flower, and the branches of the panicle spreading, it recalls *Poa compressa*, or a contracted form of *P. pratensis*, frequent on wall-tops and dry situations (the var. *subcaerulea*, Sm.?) The extremely short, narrow, rough-edged leaves, and copious bulbous offsets from the root, its much earlier flowering time, and other well-marked distinctions, will prevent its being confounded with the remaining species belonging to the section with mostly webbed florets, between which there is a strong and sometimes bewildering resemblance. I cannot find any figure of this grass conveying a correct idea of its aspect, excepting that old one of Vaillant, 'Botanicon Paris.' t. 17, fig. 8, which is very good; those of 'English Botany,' Knapp and Parnell are all extremely defective.*

Poa annua. In meadows, pastures, streets, court-yards, and under walls; the commonest of grasses.

Poa nemoralis. In shady places, woods, thickets, groves, and on hedge-banks, but rarely. Not yet observed in the Isle of Wight. On shady hedge-banks at the south end of Sidmonton Common, near

* A really well executed work, I mean as to illustrations of the Gramina of Britain, is yet a desideratum to the botany of our country.

Newtown, a few miles S. S. E. of Newbury, in considerable plenty; also on hedge-banks between Hurstbourne Priors and Andover, about a mile from the former along the high-road, plentifully, June 3, 1850. In Akender Wood, near Alton, June, 1850. On a bank between Weekhill Farm and the Hanger, Selborne, Dr. T. Bell Salter, Sept. 1844 !! The above are the only stations I am at present able to give for a grass which is probably not very uncommon in this, as in other of the southern counties of England, although more general and abundant in the northern counties and Scotland. A slender wood form of *P. pratensis* I have reason to believe is sometimes taken for this species, as is another state of the same grass, growing on walls and in dry places, for *P. compressa*.

Poa trivialis. In meadows, pastures, woods, groves, and other shady places; abundant. Spikelets said to be sometimes single-flowered in var. β . *parviflora*, Parn. In a bundle of specimens pulled in a corn-field near Ryde the glumes were invariably two-flowered, as Smith remarks to be the case occasionally.

Poa pratensis. In similar places with the last, and equally, if not more plentiful than it. Var. β . Slender; leaves long, very narrow; panicle lax; spikelets smaller and narrower. *P. angustifolia*, Linn. ? Sm. Engl. Fl. i. p. 126, with reference to Ray's Syn. and Morison's Plant. Hist. (cum fig.) *P. pratensis*, var. II. *angustifolia*, Gaud. Fl. Helv. ii. p. 259. Frequent in woods and shady places, and apt, I think, to be taken for *P. nemoralis*. Var. γ . *P. subcærulea*, Sm. ? *P. pratensis*, var. III. *strigosa*, Gaud. Fl. Helv. ii. p. 260. On wall-tops and other dry, barren places at Thorley, Cowes, Yarmouth, &c. In this the leaves are much shorter than the culm, rigid and subglaucous; the panicle small, compact; glumes very acute, with mostly three copiously-webbed florets. A somewhat similar but very dwarf form of *P. pratensis* abounds on dry sand by the sea at Ryde, &c., with short, flat, rigid leaves, and a short, triangular, spreading panicle. The former of the two has, I conceive, been repeatedly taken for *P. compressa*, as was indeed done by myself; the latter runs a chance of being confounded with *P. bulbosa* by those unacquainted with the true plant of that name.

Poa compressa. On dry, barren fields, banks and wall-tops; rare? Abundantly in a dry, elevated field above the southern extremity of the park at Swainston, near Rowledge Barn, Dr. T. Bell Salter, Sept. 8, 1843 !!! I have not seen it since, or elsewhere in the island. Plentiful on a wall in the Cathedral Close, at Winchester, immediately facing the entrance to the Dean's house, as well as on several other

walls in the vicinity of the cathedral; likewise on the North Wallis, and on walls in Hyde Street. On a wall in Basingstoke, by the house of Mr. May, brewer, July 12, 1850. Perhaps not uncommon in the county, but lost sight of by the passing botanist from the close family resemblance between it and other species of the genus, as now restricted. I feel pretty certain of having been shown specimens at Andover, by Mr. W. Whale, gathered there by himself, but have no examples from thence to recur to for full assurance on the point. The Salterns (near Fareham), Mr. W. L. Notcutt. Spikelets, in my Winton specimens, in some examples three to four, in others five-flowered, webless, and agreeing with the var. *subcompressa** (*P. subcompressa*, *Parn.*). The character of having the highest joint of the culm at or near the middle of the latter, applies only to small or medium-sized specimens; in tall plants the culm is nearly erect from the base, and the uppermost node near the top of the stem. The having the sheath of the topmost leaf about equal in length with the leaf itself, I find a much more, if not always, constant character.

Glyceria aquatica. In ponds, ditches, rivers, streams and water-meadows. This fine and most conspicuous grass is extremely abundant and widely diffused over the whole of mainland Hants, but is totally absent from the Isle of Wight, although there are many localities on this side of the Solent apparently congenial to its habits.† Abundant about Southampton, Winton (Winnal meadows, &c.), Bishop's Stoke, &c. Plentiful about Petersfield, in streams and ditches. In the Avon, near Ringwood, and along most other parts of that river. Exceedingly abundant in wet meadows at Christchurch, Sopley, Avon, Fordingbridge, &c. In the Test, at Forton, near Andover, and at Romsey, besides innumerable other places. Titchfield River, Mr. W. L. Notcutt !!!

Glyceria fluitans. In ponds, ditches, slow streams, and low, wet places, meadows, &c.; frequent over the county and Isle of Wight.

Glyceria plicata. In like places with the last; rare? On the heath near Cæsar's Camp, between Farnham and Farnborough, Mr. H. C. Watson in litt.! With the characters and appearance of this

* In those from Basingstoke some of the spikelets bore but two florets.

† One cause of the scarcity or absence of a great majority of aquatic or semi-aquatic plants common in other districts of the county, which constitutes a local peculiarity of the Vectian flora, is, I conceive, the impregnation of most of our standing water and slow streams with iron, through the decomposition of the pyritic nodules so abundant in the greensand and argillaceous strata of the island, and which metal certainly acts as a poison to vegetation when in excess in the soil.

newly-dissevered species (from *G. fluitans*) of Fries, I am as yet practically unacquainted, but from the description of the assigned distinctions, the diversity of opinion respecting its claims, and above all, from the remarks in the sixth edition of the 'British Flora,' I should fear *G. plicata* was one of those species that so abound in the pages of systematic botanists, but ignored in the volume of Nature's own inditing.

Sclerochloa maritima (*Poa maritima*). In moist pastures by the sea, and in salt-marshes; common along the Hampshire coast, and in several parts of the Isle of Wight. Shores of Yarmouth Harbour, above the mill. Plentiful in the salt-marshes at Newtown, and very fine about the edges of the brine-pits, &c. In abundance by Yarmouth and Brading, Mr. W. D. Snooke in Fl. Vect. !!! The Salterns (Fareham), Mr. W. L. Notcutt. Common along the western coast of the county. Var. β . Stem diffuse, almost prostrate; branches strongly deflexed; Fl. Dan. xiii. t. 2222? (*P. distans*). At the farthest extremity of St. Helen's Spit, on the beach near the inn. This I gathered (now several years back) for *P. distans*, but Mr. Borrer regards it rather as a form of the present species.

Sclerochloa distans (*Poa distans*). In sandy pastures and waste ground, chiefly near the sea. Plentiful in the marsh-meadows behind Ryde Dover. Between Yarmouth and Thorley, in a wet spot at the eastern end of Stopler's Copse, Oct. 5, 1845. Salt-marshes at Lymington. Along the terrace-walk by the shore at the bottom of Pelham Fields, Ryde, abundantly, Rev. G. E. Smith !!!

Sclerochloa Borreri. In muddy salt-marshes, about the edges of the drains and ditches. In the ooze of the ditch on Ryde Dover, at the end of Monkton Street, in the rear of the engine-house, sparingly. Abundant in the first meadow, or that nearest the sea, at Freshwater Gate. Newtown marshes, and on the marsh-meadows behind Ryde Dover, along with *S. distans* and *procumbens*, but not observed plentifully, July 21, 1844. The figure, together with the description by Mr. Babington (the founder of the species), of this grass in E. B. Suppl. 2797, are most excellent. At Freshwater, Mr. Borrer, who also finds it along the opposite mainland coast, at Stoke's Bay, Gosport and Southton.

Sclerochloa procumbens (*Poa procumbens*). In similar places with the three foregoing species; likewise on waste ground, and at the foot of walls, houses, &c., near the sea; not uncommon. In the marsh-meadows at the back of Ryde Dover, but not abundant there, July, 1844. In the lower part of Dover Street, about the edges of the

paving and kerb-stones. Under the wall by the Yacht Club House, West Cowes, and on waste ground in front of it, plentifully. By the White House, East Cowes, and in various other places about that town, at least several years ago, but not recently looked for there or in the remaining stations just referred to. I have seen this species on the mainland opposite coast, but cannot now find notes (if I made such) of its occurrence. I believe to have remarked it at Lymington, in or near the Salterns, and I think in other places.

Sclerochloa rigida (*Poa rigida*). On dry, barren and waste ground, fallows, walls, rocks and cliffs; not uncommon either in the Isle of Wight or across the water. Amongst the ruins of Quarr Abbey, and on Ryde Dover, if not now destroyed by building. On cliffs near Ventnor, St. Lawrence, &c. By the road-side between Niton and Blackgang, at the foot of the stone fences, pretty abundantly, 1842. Abundant in dry, chalky fields at the foot of High Down, between the Needles Hotel and Alum Bay. Corn-field near Calbourne New Barn, 1842. On the wall or stone-faced bank below the church at Newchurch, in considerable plenty, with *Petroselinum sativum* (quite and long naturalized there). At Yarbridge, and various other places. Shide Chalk-pit, &c.; rather common throughout the island, Mr. W. D. Snooke in Fl. Vect. Not rare on mainland Hants, but time will not permit me now to look out for the observed localities amongst my notes. Fields at Selborne. On a wall at Portsmouth, in plenty, and gathered in many places in the county.

Sclerochloa loliacea. On dry, barren and sandy ground, walls, banks, cliffs, and pastures by the sea, but rare in the Isle of Wight. On Ryde Dover, sparingly; not seen there for years, and in all likelihood now quite extirpated. At St. Catharine's Point, not far from the new lighthouse (St. Catharine's Tower), Sandown Bay. Yarmouth, Isle of Wight, Mr. E. Forster, jun., in Bot. Guide, and Mr. Dawson Turner in Snooke's Fl. Vect. (probably on Norton Spit). St. Helen's, Dr. Macreight, Man. of Brit. Bot., where I also found it, July, 1839. I have no mainland station to assign for this interesting but withal somewhat ambiguous species.

Briza media. In dry or barren fields, pastures, meadows, and on turfy heaths; abundant in every part of the island and mainland. Profusely on the short turf of our high chalk-downs, as well as in the more humid and fertile soil of hay-fields and artificial grass-lands, into the produce of which it sometimes enters rather too largely. A variety with pale-green spikelets, the result of excess of shade or moisture, is not uncommon, and has been occasionally taken on the

continent, and perhaps with us, for the following. Panicle much less branched or decomposed than in the next species, the spikelets consequently fewer and distant; culms leafless at the top; anthers exerted.

Briza minor. In corn-fields and other cultivated ground, also on thin pasture-land by road-sides, but much seldomer in the latter than the former situations; very rare. In the two last fields, one on each side the road, from Quarr Abbey to Fishhouses, abundant in certain years, whenever the land is cropped with corn, particularly wheat, at other times usually scarce. In 1836, when I first observed it, the quantity was very moderate, but the year following it was abundant (I think amongst oats), and in 1839 came up in profusion, both amongst wheat and vetches. In 1840 scarcely a specimen could be found, but in 1842 it was again plentiful, also in 1843, in the right hand field (from Quarr), then in lay. In 1838, when the land was laid down with clover, the plant almost totally disappeared. Again abundant in 1845, and since then up to the present year (1850) found when looked for in plenty occasionally, and if not to be seen in the fields it may almost always be gathered on their grassy margins, although not so abundantly. The *Briza* is certainly permanent in this, its only known Isle-of-Wight station, and no casual introduction with corn or grass-seeds, as is sufficiently proved by its invariable abundance when certain crops come in rotation. Abundant in corn-fields at Marchwood, near the head of the Southampton Water, on the opposite side to the town, Mr. Borrer !!! I gathered it there in plenty in 1836, and again this summer (1850), and find it scattered over most parts of that vicinity, not only as a weed, in cultivated fields of all kinds, but on the short, thin turf or pasture by the road-sides, along with such semi-pascual[†] and pratal species as *Anthemis* *Cotula*, *Polygonum aviculare*, *Pulicaria vulgaris*, &c., but much more sparingly than on the tillage-lands,* nor is it, with us at least, a true meadow or pasture-grass, like *B. media*. Potato-fields at Boscombe, near Bournemouth, between Christchurch and Poole, the Hon. C. A. Harris, ex. J. Curtis in litt. and Brit. Entom. viii. t. et. fol. 353 (from a Hants specimen). No doubt it occurs in other parts of Hants, but only probably in the south-west and along the coast. The Isle of Wight is, I believe, the most easterly station in England for *Briza minor*, than which few species are more characteristic of the occidental

* At Poole, in Dorsetshire, Dr. Salter finds *Briza minor* springing commonly from the interstices of the pavement in the less frequented streets of the town.

flora. Panicle copiously branched or decompound, with very numerous spikelets; culms usually leafy nearly to the top, anthers included. A more delicate and graceful species even than the last, and one of our most beautiful as well as rare grasses, from the silvery green of the panicle, and pale, tender verdure of the leaves. In size it is scarcely inferior to *B. media*, rising very commonly in our corn-fields from six to eighteen or twenty inches, and I gathered specimens this summer at Marchwood which were little short of a yard high. The plant tillers like wheat, and sends up frequently numerous culms from the same root, often three, the two lateral exactly of the same size, shorter than the central one, and slightly ascending at bottom. In very tall specimens the summit of the culm is leafless, as in *B. media*. The stamens appear to me from repeated examination to be either imperfect or wholly wanting in the majority of the lowermost florets of each spikelet, as also the styles.

Cynosurus cristatus. In dry meadows, pastures, and by road-sides; abundant everywhere in the county, constituting a large proportion of the crop in our hay-fields and grass-lands.

C. echinatus it is possible may some day be found in the sea-side pastures of West Hants.*

Dactylis glomerata. In meadows, pastures, by road-sides and borders of fields, as well as in woods, groves, orchards (thence called Orchard-grass), and other shady places; a common but valuable grass everywhere.

Festuca uniglumis. In the loose, sandy shores of the sea, or in dry, barren ground adjacent; rare. In the loose sand of St. Helen's Spit, Isle of Wight, in the greatest abundance, where it was first noticed by Mr. Borrer!!! South-west shore of Portsea Island, but not very plentifully.

Festuca bromoides. Not uncommon on dry, barren ground, walls, and in sandy pastures. Formerly on Ryde Dover, now probably lost. Wall-top in the Spencer Road, Ryde. Calshot Beach, and various other places in the island and on the mainland. Var. β . *Myurus*, F. Myurus, Sm. &c., not Linn. Chiefly on walls, but quite rare in Hants. On the walls round the church-yard at Thorley, in tolerable plenty, June 22, 1841, and repeatedly seen there since by myself. On the

* It is said to have occurred in Kent, and in Sussex (Hastings), but I think has not been found in either county of late years. I have seen specimens (Oct. 21, 1845) in the possession of the Rev. Wm. McAll, of Brixton, Isle of Wight, gathered under the Hoe, at Plymouth, I believe by the Rev. W. S. Hore.

garden-wall of Wolverton, by Shorwell, 1839. Wall at East Cowes, June, 1837. Not remarked on the mainland. Said not to be the Linnean *F. Myurus*, nor of continental botanists. In appearance this, the Capontail-grass, is very distinct from the commoner state of the species.

Festuca ovina. In dry, barren and especially elevated pastures and heathy places; common throughout the county and Isle of Wight. Abundant on the high downs. Var. *β. duriuscula*. Equally frequent. Var. *γ. rubra*, *F. rubra*, *L.* In loose sand by the sea, and in sandy pastures, I think frequent. On St. Helen's and Norton Spits, Isle of Wight, &c. A mere creeping-rooted state of *F. ovina*, as I am now quite convinced of its being.

Festuca pratensis. In moist meadows, pastures, on banks, by road-sides, &c.; frequent. Plentiful by the road-side between Ryde and Ashe, at the upper end of Rosemary Lane, if it be not rather the inland state of the last. Var. *β. loliacea*, *F. loliacea*, *Sm.* Wet meadows, not common. In a marshy meadow called Pan Moor, just out of Newport, towards Shide. Abundant in meadows at Easton, Freshwater Gate, where it may be seen passing into *F. pratensis*, which abounds there. Whitwell. Meadow by the stream-side a little below Calbourne Mill. By the side of the Medina, between Newport and Shide, Mr. W. D. Snooke in *Fl. Vect.* !!! Now very properly reduced by common consent to a variety of *F. pratensis*.

Festuca arundinacea (*F. elatior*, *Sm.* an *Linn.*?). On the banks of rivers, and in moist meadows and pastures, also on the moist, sandy sea-beach, and wet banks along the shore; rare. Upper end of Sandown Bay, near the foot of the Culver Cliffs, in plenty. Abundant on the wet, slipped land under the cliffs at the mouth of Luccombe Chine, on the Shanklin side. I have not met with this species as yet on the mainland. Of this tall and stout grass Mr. H. C. Watson, who had also remarked it at Luccombe, writes, March, 1842:—"There is a large *Festuca* by the shore at the entrance of Luccombe Chine, going thither from Shanklin Chine, which has puzzled me a good deal. A root now in my garden, I *believe* to have been brought from that spot, produces leaves near a yard long, and a culm of five feet high, with very numerous spikelets, much more ovate than those of *F. pratensis*, and with the glumes and paleæ more acute and slightly awned. I fancy this to be the *F. arundinacea* of continental botanists." I have seen the same plant at Exmouth and Plymouth. Having neglected to examine this plant for some years, I cannot speak to the divaricate state of the branches of the panicle after flowering, given by

Mr. Watson, as characteristic of the species. The Isle-of-Wight plant would seem assuredly to be the *F. littorea* of Wahlenberg, Fl. Suec. edit. 2, i. p. 66, as well from the references to the *F. elatior* of Smith and E. B. as from the agreement of our plant with Wahlenberg's description. The name "*elatior*" ought, I apprehend, to be retained, as in the last edition of the 'British Flora,' for the *F. arundinacea* of continental authors is in a hopeless state of confusion, and I fear the characters and synonyms of *F. elatior* and *pratensis* are still in a fluctuating condition. They are certainly most puzzling and ambiguous species. The Isle-of-Wight *F. arundinacea* is a large, maritime form of Smith's *elatior*.

Festuca gigantea. In moist, shady woods, copses and hedgerows; not uncommon. In Quarr Copse, Shore Copse, and elsewhere about Ryde. Whitefield Wood. Near Yarbridge. Knighton E. Copse, by Newchurch. Shanklin Chine, Appuldurcombe, &c. Frequent in most parts of mainland Hants, so as to make a statement of localities needless. A variety of a more delicate and slender aspect occurs here and there, differing only in having the spikelets fewer and more remote, the number of florets being the same in both. This I believe to be the *B. triflorus* of Linneus, figured in E. B. xxvii. t. 1918, and in Fl. Dan. iii. t. 440. The present species is nearly intermediate between *Festuca* and *Bromus*, making an approach also to *Brachypodium*; the habit is quite that of a *Bromus*.

Bromus asper. Abundant in most parts of the county and Isle of Wight, in damp woods, copses, groves, and thick, shady hedgerows. One of the tallest and most graceful of our grasses, often upwards of six feet high, and most conspicuous from its large panicle, elegantly drooping in all directions.

Bromus erectus. On dry, sandy or chalky, open pastures, banks, and by road-sides; very rare, or at all events very local, in Hants. At Luccombe, Isle of Wight, where it appears to have been first noticed by Dawson Turner, Esq., and communicated by him to the author of the 'Flora Vectiana'!!! It still grows there in plenty, along the steep descent into the chine from the Bonchurch and Shanklin Road, above Rose Cliff, and in vast abundance on the sloping side of the down above the road between Luccombe and Bonchurch, here and there covering the ground, to the exclusion of every other grass, at an elevation of perhaps about three hundred feet above the sea, June 16, 1844. Bank by the road-side a short distance beyond Weyhill (coming from Andover), before turning off to Appleshaw, also on a hedge-bank near Appleshaw, in both places plentifully, June, 1848.

These are the only stations at present known to me as affording this rather rare grass, of which the description in Bertoloni's 'Flora Italica' is particularly excellent. The *B. agrestis* of Allioni, and of the very faithful figure in Host's 'Gramina Austriaca,' i. p. 9, t. 10.

Bromus sterilis. Nearly everywhere, most abundantly, in waste places, by way-sides, the borders of fields, and on dry hedge-banks, walls, &c.

Bromus diandrus. In dry, barren and sandy ground, and especially on old walls; very rare? Not known to me as inhabiting the Isle of Wight. Gathered in some plenty on a wall near the gaol at Southampton, May 28, 1840, and noticed, July 20, 1850, in very considerable plenty on various parts of the ruins of Netley Abbey, in fully ripe seed. These stations I have since learned from Mr. Borrer had been long known to him. It will doubtless be found elsewhere in the county.

B. maximus, a nearly allied species, native in the Channel Islands, may perhaps acquire hereafter a greater claim to be called British by its discovery along our southern coast.

B. tectorum, a common grass on roofs, &c., over most parts of the continent from Sweden southward, seems to differ from *B. diandrus* in the broader leaves, longer, more whorled branches of the panicle, and smaller and drooping spikelets, and to partake of the characters of both this last and *B. sterilis*.

Bromus secalinus. In corn-fields; not very uncommon in the Isle of Wight and mainland Hants, but excepting in seed not easily distinguishable from *B. mollis*. About Ryde, occasionally, but in no fixed station. At Whatcombe, near Newport, Mr. Wm. Hughes, where it abounded to an injurious degree some years ago, having been introduced, Mr. H. supposes, with seed-wheat from Suffolk, and it was only by changing the seed that he was at last successful in ridding his fields of it. At Redhill, abundant, *Id.*! Amongst vetches at Play Street Farm, by Ryde, Mr. Wm. Jolliffe, 1841! On the sea-coast at Ryde, Withering. Bot. Arrang. 7th edit. Corn-field at Marchwood, in great plenty, July 22, 1850. Sandy corn-fields at Cove, near Farnborough, July 14, 1850.

Bromus commutatus. In corn and other cultivated fields, and their borders, by way-sides, in pastures, and even in woods and hedges; in various parts of the Isle of Wight. At Ryde, by the new road from the Dover to St. John's turnpike, in plenty, along the bank on the right hand, 1850. By the road-side between Ryde and Bradling, before coming to the turning to St. Helen's, frequent, July 5,

1839. Field near Coppid Hall. By the pathway between Sandown and Shanklin, and in a corn-field near Shanklin, towards Luccombe. Hedge-banks near Carpenter's, below St. Helen's, and elsewhere in the island. I am not prepared to give the distribution of this species in mainland Hants from personal observation, but suppose it is not uncommon there. Fields by Down Lane (Fareham), Mr. W. L. Notcutt. Very apt to be mistaken for *B. arvensis*.

Bromus mollis. A most universal and abundant species throughout the county, in meadows, pastures, corn-fields, waste places, by road-sides, &c. Very variable in the degree of pubescence of the leaves and spikelets.

Bromus racemosus. In just the same places as the last, but somewhat less common and universal. Not rare about Ryde, as in fields between that town and Binstead. Fields near Ashey, &c. Abundant in meadows on Sandown Level, where I find a variety intermediate, as it were, between this and the last, with the culms pubescent. I can hardly believe this to be more than a glabrous state of *B. mollis*.

‡¹*Bromus arvensis*. In corn-fields and waste places, by road-sides, &c.; extremely rare, and held to be an introduced and imperfectly naturalized species in all the assigned English stations. Fields near Southampton, Sherard. Corn-field between Netley Abbey and the old fort, 1804 or 1805, Mr. Borrer. Southampton Bay, Hook. and Arn. Brit. Fl. 6th edit. (the same station as the last?—if not, where is Southton Bay?). I have never seen Hampshire specimens of this grass. The plants belonging to this section of *Bromus*, which constitutes the genus *Serrafalcus*, *Parlatore*, and of the 'Manual,' are kept apart by characters not the most satisfactory to such as seek for broad grounds of distinction in species.

Brachypodium sylvaticum. Extremely common in moist woods, thickets, groves, copses, and on shady hedge-banks, as well as on dry, elevated and exposed places on downs and heaths, throughout the Isle of Wight, and in most, if not all, parts of mainland Hants. Var. β . Spikes nearly erect. In open, heathy or grassy places on chalk-downs. "On the downs in various places there is a very deceptive-looking *Brachypodium*, which I suppose is a variety of *B. sylvaticum*, but it has some of the characters of *B. pinnatum*, such as the erect, pinnated spike, cylindrical, hairy spikelets (are not those of *B. pinnatum* usually smoothish?), and almost glabrous leaves, but then the leaves are broad and the awns long, which are strong characters of *B.*

sylvaticum. This plant appears to be nearly intermediate between the two." (Mr. Wm. Wilson Saunders in litt., July, 1841).

The above remarks of my friend Mr. Saunders apply to a plant I had long and repeatedly observed in dry, open, hilly places in various parts of the island, and which I had always looked upon as a variety of *B. sylvaticum*, differing merely in its more erect or less drooping spikelets, and such Mr. Mitten, who received specimens from me, considers it. The variety occurs abundantly on the slopes of our downs at Bonchurch; between Shorwell and Brixton; behind the Tolt Copse, near Gatcombe; near Hampstead; by Yarmouth, &c. It is certainly different in aspect and character from the genuine *B. pinnatum*, which I have not succeeded in finding in this county, although from its frequency in most of the adjoining ones I cannot but think it must soon be forthcoming in Hants. Our var. β . I have seen in many places across the water, and gathered it plentifully at the back of Box Hill in August last.

The inner pale in the florets of *B. sylvaticum* overlaps and incloses two of the stamens, and the ovary, leaving the scale (nectary, *Sm.*), which is deeply cloven almost to the base, and the remaining stamen between the pales, free; this third and outer stamen lies in and exactly fills the space left between the inflexed edges of the inner pale.

Triticum caninum. In woods, thickets, hedges, and on banks, &c., particularly chalk or limestone, and in shady situations; to myself appearing quite uncommon in Hants, as I think I have heard Mr. Borrer say it is in Sussex. I cannot quote a single habitat for this species in the Isle of Wight from my own observation, and as I understand the plant, but Dr. Salter finds what he considers *T. caninum* plentifully in hedges between Holm Wood and Aldermoor Mill, near Ryde, as also between Havant and Leigh Park. In Akender Wood, near Alton, July 13, 1850. Butler's Copse, by Hambledon, Aug. 8, 1850. Thick hedgerow a few hundred yards east of Nettlebed Farm, near Alresford; in all three stations quite sparingly, and in company with *Hordeum sylvaticum* (*Elymus europæus*), of which it has much of the aspect. At all times readily distinguishable from every variety of the two following by its fibrous root, fewer (three to five) ribbed florets, and very long, wavy awns, that give it a remarkably bristly appearance.

Triticum repens. On hedge-banks, borders of fields, in waste and cultivated places, woods, &c. A very common and often extremely troublesome grass. Var. β . *littorea*. Whole plant more or less glau-

cous; florets with or without awns (Host. Gram. Aust. iv. p. 5, t. 9, and perhaps also his *T. glaucum*, p. 6, t. 10). Abundant under the shore at Apley, and along the coast at the Priory, Sea View, &c. Under Apley walks the plant may be found exhibiting every gradation between the awned and unawned states, and of every shade of colour between the usual inland green and the intensest blue or glaucous tinge, which it generally contracts by the sea. Wicor Hard; Cams shore; the Salterns (all near Fareham): Mr. W. L. Notcutt.

Triticum junceum. On sandy banks, hillocks, and waste ground by the sea-beach, along with var. β . of the preceding. Very fine on the shore a little east of Ryde, beyond Apley House. Sandy shore at the Priory. In great abundance on the loose sand of Norton Spit, and in many other places. The characters given for discriminating this from the preceding, both being themselves prone to exhibit great inconstancy in the very points adduced as arguments for their separation, are just such as may be created by the modifying influences of soil and situation. My own belief is, that *T. junceum* is but a sea-side variety of *T. repens*, whilst *T. caninum* is to all appearance truly distinct from either.

Lolium perenne. Plentiful everywhere in meadows, pastures, waste ground, corn-fields, by road-sides, &c. Var. β . Spikes branched. In the Spencer Road, Ryde, Dr. T. Bell Salter! who finds this compound form extremely common about Ryde, on the Dover, between Ryde and Ashe, as well as elsewhere.

†*Lolium multiflorum*. In cultivated fields, and on banks, &c.; rare, and probably either naturalized by direct importation with foreign grass-seed, or an annual or biennial state of *L. perenne*, produced by culture, as suggested by the authors of the sixth edition of the 'British Flora.' In a clover-field near Fernhill, Aug. 1841. Plentiful and with very long awns along a private path to Brooklands (the Rev. Augustus Hewitt's) from Binstead, Dr. T. Bell Salter!!!

Lolium temulentum. In corn-fields, chiefly amongst wheat and barley, but certainly not common in the county, at least in this island, nor have I chanced to fall in with it myself. Between Lake and Sandown, Dr. T. Bell Salter, Sept. 1838 (two species only)!! Amongst barley at Whitcombe, near Newport, Mr. Wm. Hughes!! Corn-fields about Yarmouth, the late Mr. Joseph Squire; and Thorley, Mr. R. Gibbs!

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued).

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